A Clinical Lecture
ON
BLOOD PRESSURE:
ITS RELATION TO THE TREATMENT AND DIAGNOSIS OF VERTIGO AND TINNITUS.

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BY RICHARD LAKE, F.R.C.S. ENG.,
G. E. DUVEEN LECTURER ON OTOLOGY, UNIVERSITY OF LONDON.

THE effect of the blood pressure upon the symptoms of vertigo or tinnitus—and one may here remark that what applies to these two symptoms may be applied even more widely to deafness—is a matter in which I have been much interested for many years, more especially in the first instance in vertigo, as the amount of incapacity caused thereby is so frequent and so severe. In 1912 I compiled a classification of cases of aural vertigo. Amongst these were: Aural vertigo due to altered states of the blood pressure: (*a*) increased blood pressure, and (*b*) diminished blood pressure.[1]

At that time I was under the impression that increased pressure was the commoner condition. Now, however, I am sure that it was partly my ignorance of the proper technique, and partly preconceived opinion that were the causes of my assuming results which now I am convinced were wrong. After a while I got into the habit of always sending my patients, whenever possible, to a skilled observer. The mercury sphygmograph made a great improvement possible in the accuracy of observation—still, I think that the stethoscope should be used in all cases to obtain the best results. At this time we were obsessed as well by a supposed condition called increased intra-labyrinthine pressure, a condition which, without much risk, I think we can say has yet to be proved to exist. The paralysing effect of such, or any, unsupported explanation on research is really serious. And seeing this, I feel that it will be better if my present contribution is received with, to say the least, reservation.

TREATMENT OF VERTIGO AND TINNITUS.

A few words as to the operations I was largely instrumental in introducing for the relief of vertigo and tinnitus. Some of my colleagues generously sent their cases to me thinking that some more uniform result would be obtained if the material were in the hands of one rather than many, and that also more definite indications for operation would result. Altogether, since 1904, I have done 19 operations for vertigo with one death; the result was good and I do not think that a death should ever occur. A good example of the beneficial effects of the operation for vertigo is a patient (reported by me previously as No. 8)[2] who commanded a Territorial regiment in India throughout the war.

Turning to operative treatment for the relief of tinnitus one forms a totally different opinion. In 1909 I stated that in my opinion operations for tinnitus never ought to be done,[3] and that is my opinion to-day, absolutely without qualification.

I think it is more rarely now, with our present knowledge, that it is necessary to operate on vertigo. Relatively, it is also seldom, I am thankful to say, that the adviser is unable to give relief to the sufferer from vertigo, although I regret to say relief is not so frequent with regard to those suffering from tinnitus. Above all, when one has any evidence of neurasthenia, we must be very careful never to suggest operation. A few years ago, my colleague, Mr. Tilley, asked me to see a patient with severe tinnitus. I treated him off and on for some time, but with little effect—he was a confirmed neurasthenic. He implored me to operate, which I refused to do, but then came to me and said he had been to see two other aurists who both wished to operate. I besought him to be advised by me, and to have nothing done, as he not only would derive no benefit, but rather would be worse from the effect of the disappointment. Unfortunately, however, he preferred to attempt to obtain the impossible. Later on he wrote to me, as he had already promised he would do in the event of his submitting to operation, confirming my pessimistic view.

These two symptoms, vertigo and tinnitus, occurring in many diseases besides aural ones, have one great point of difference in the latter. The former, except in suppurative disease of the middle ear, is more often central, while the latter is, at least in earlier periods of life, most frequently due to a peripheral irritation.

Past and Present Methods.

In considering the treatment of these conditions it is well to revert to the methods of 20 years or so ago. This especially applies to tinnitus. When a patient complained of tinnitus, the aurist, who at that time had but little to guide him in the pathology of the condition, was in the habit (presuming others behaved in a more or less similar way to myself) of using four or five drugs, purely empirically. We got good results, or bad results, or no result at all, but never was one able to arrive at any clear indication to assist in giving any *special* treatment in any *specific* case. Now, however, things are certainly improved. We know much more about the origins and causations of these two symptoms. We know more about the pathology, infinitely more about the physiology, and a great deal more about the effect of drugs and treatments.

If we consider vertigo, we notice that, except in suppurative disease, it is uncommon before adult life; that is, in the earlier years—up to 25, we will say—it appears to be almost always the result of middle-ear disease. When it occurs in early adult life and onwards to old age, it appears to be practically invariably the result, either of changes in the arterioles or of the effects in the general circulatory system caused by disease or drugs.

The treatment of vertigo in the relatively young adult requires a very careful study of all possible contributory factors, and here, as well as in later life, a careful estimation of the blood pressure may be of great assistance. Of other contributory factors which may be present, sepsis, tendency to neurasthenia, and any coexisting disease of the ear are the chief. It is only when we are unable to give relief that operation is called for, and even then operation should only be resorted to when deafness is of so high a degree that the ear is useless.

When one comes to study and deal with cases of vertigo occurring in ordinary non-suppurative middle-ear disease, or in cases where there is no obvious middle-ear disease occurring towards the prime of life or later, there are certain conditions which will prevail. One of the most frequent is that there is an abnormal state of the blood pressure. Another one is that not infrequently the patients have a fixed malleus and an obstructed nose, and have been in the habit of using great violence in blowing the nose. In such a case there will be a very lax tympanic membrane. This laxness is rarely found without pre-existing fixation of the malleus, and is caused, as is sometimes vertigo, by violent distension of the middle-ear through the forcible nose-blowing; then merely ceasing from violent nose-blowing will, in many cases of itself, cause the disappearance of the vertigo. Correction of the nasal obstruction is necessary for permanent relief.

THE INTERPRETATION OF BLOOD PRESSURE.

With regard to blood pressure what has to be said will apply equally to tinnitus and to vertigo. We can, for the sake of argument, consider that blood pressures may be divided into three main

[1] THE LANCET, Dec. 14th, 1912. [2] Ibid., June 10th 1911. [3] Brit. Med. Jour., Oct. 16th, 1909.

categories: above the average, the average, and below the average—the average being that termed the normal blood pressure, but the word normal here means the mean or average blood pressure of a large number of people in good health. Therefore, there must be a smaller proportion than the average who have a blood pressure above the average; the same applies to the low pressure, and, I think, it is the generally accepted fact that the lower blood pressures are people who, given the opportunity, live the longer.

The relative importance of the height of the blood pressure is probably, as far as I can see, more difficult to ascertain and determine during that period of life in which an early arterio-sclerosis shows itself, and it is there that a correct interpretation of the value of blood pressure shows the skilled physician. I think it is acknowledged that when arterio-sclerosis commences the blood pressure steadily rises, and that this will continue rising to a high grade from the individual's normal, but will, in a proportion of cases, later on begin to drop, and may fall very low.

When we find in an adult that the blood pressure is considerably below normal, and this in a person who suffers from vertigo, it is well to attempt, at the commencement, to raise that blood pressure towards that to what is assumed to be the normal, but it has always seemed to me that from 10 to 12 per cent. is as much as we should endeavour to raise it, for in these people it is probably normal at but little above 120 at the age of 45. Here one finds the most extraordinary effect of tobacco-smoking. If the blood pressure is low after the age of 40, tobacco-smoking appears to me frequently to have the effect of causing vertigo. When this is the case the mere abstention from the drug affords relief from the symptom which lasts as long as that abstention is observed.

One of the chief characteristics of the vertiginous attacks due to subnormal states of the blood pressure is the period in the 24 hours during which many of the attacks have occurred. The patient wakes up giddy, attempts to get up, and is generally obliged to return to bed and there stay for a period of time which may last from a few hours to several days. This condition seems to be generally attributed to bilious attacks, and I do not see quite how we are to separate them, as at any rate, personally, I am quite ignorant of what a bilious attack is. Sweating occurring after the attack I have also noted, but by no means constantly. As for the direction attributed to the movements of particular objects, certainly in a large proportion of cases there is no specific direction observed, but the fact that there is a specific direction does not seem to be of any importance. Of course, one comes upon a certain number of people who think that they are giddy when only experiencing a tendency to faint, and they always will answer in the affirmative when asked if everything goes black when the attack occurs. Actual vomiting, I should say, is uncommon, though nausea, even severe, is generally complained of in vertiginous attacks with low blood pressure.

A high blood pressure is, I think, extremely rare in cases of vertigo, and I am inclined to think that it is on account of the fact that when the intercranial arterial pressure is raised high enough to possibly cause a vertigo, that symptom is missed in the general physical disturbance. Still, vertigo does occur, though very rarely, in association with a high blood pressure. One of the rare instances in which I can recall high blood pressure with vertigo was due to sepsis derived from pyorrhœa. This was the case of an extremely vigorous woman of some 50 years of age, and she was immediately relieved of her vertigo when the oral sepsis was cured. High blood pressure in cases of vertigo is so rare as to be almost negligible. It is only when we find the blood pressure of a person suffering from vertigo is not subnormal, but practically the average, that there is any serious difficulty in arriving at the causation, when we seek the assistance of a skilled physician who can inform the aurist whether arterio-sclerosis is commencing or not, and if the patient, who would in health have had a low pressure is now developing an average blood pressure, —i.e., a raised one for him.

Excessive Reduction of Blood Pressure as a Cause of Vertigo.

I have twice been consulted by people, one of either sex, who had each been under a physician for the purpose of having a too high blood pressure reduced. The physician had in each instance been, from his point of view, successful. What the two medical men thought of my request that they would allow the pressure to go up again I never knew. Both of them were kind enough to accede to my request, to the patients' immediate relief from the vertigo. And there is no doubt that such or similar effects occur as the result of disease.

With regard to the treatment of vertigo, where relief is not obtained either from the cessation of violent nose-blowing, or from the discontinuance of tobacco, there are many drugs which will raise the blood pressure. I did all my early work with the derivations of ergot. There is a form of medication which is at the present time very much before us, I refer to the use of the endocrines, and I am convinced that in the administration of the correct combination of certain of these products the best method of treatment may lie.

TINNITUS AND ITS TREATMENT.

Tinnitus, in contradistinction to vertigo, was, during what I may term the empirical age, perhaps the more successfully treated. It is always well, I think, to confess even in public the error of one's ways, and it was my habit in those days to have five, I think it was, prescriptions, and my tinnitus cases ran the gamut, unless they were fortunate enough to get early relief. Even then I was quite convinced that the best drug, taking it all round, for the treatment of tinnitus was dilute hydrobromic acid, but of the why or wherefore I was ignorant, nor had I any definite reason for giving it in any particular case. We have here two totally different causations. In early life, and occasionally later, peripheral irritation is the direct cause of tinnitus. We may have an acute obstruction of the pharyngeal end of the Eustachian tube, caused by a little inflammatory condition, due to colds, and so forth. It is also occasionally kept up by a more or less chronic stricture of the tube. I have relieved an early tinnitus by injecting into the inner end of the Eustachian tube a very minute quantity of glycerin. acid carbol., not only may the tinnitus be stopped thus, but, if so, it is stopped instantly. Naturally, these intertubal injections are not capable of being handled without experience. Nor must the amount blown into the tube exceed at the outside one minim, and very gently, for it is perfectly extraordinary how much evil may result from what should be a perfectly safe procedure.

Fixation of the Stapes.

Leaving now tinnitus in the young, or tinnitus as a result of inflammatory effects of the nasal pharynx, we come to that variety of tinnitus due to middle-ear disease where there is fixation of the stapes, and in these cases the symptom is particularly difficult to treat. I have seen it due to an adhesion of the tympanic membrane and the stapes head, which was relieved by a division of the tiny adhesion. Tinnitus due to fixation of the stapes and the oval window is the most obstinate and resistant of symptoms, and it is here that empiricism is still paramount; I will not recapitulate the drugs which have been recommended, for you will find them enumerated in every text-book upon the subject. Here I think the value of acid hydrobromic dil. and valerianate of zinc in doses of 5 to 7 gr. (three times daily) should be tried. But when we come to consider the tinnitus rather as the disease and not the symptom, by which I mean the case of a person who consults the aurist for noises in the head, and whose auditory powers are practically unaffected, we obtain

a blood-pressure picture the absolute opposite of what is found in vertigo. The blood pressure in tinnitus cases over middle age is much more often above than below the average, and must be primarily entirely due to a central nervous disturbance. Here then is the reason why dilute hydrobromic acid is of value in tinnitus. For this drug to act well the blood pressure must be above normal; the acid is given in doses of a drachm three times a day, reduces the blood pressure slowly and steadily, and gives relief in nearly every instance.

When the blood pressure in a case of tinnitus is normal or sub-normal, we can still use the same drug, qualified with other substances capable of slightly raising the blood pressure, such as digitalis and strychnine. That is to say, that if a patient has a low blood pressure, or a normal blood pressure, the hydrobromic acid will not effect any relief of the symptom, because it will still further lower the blood pressure, whereas when the blood pressure is high, the action of the drug alone suffices. Here a judiciously chosen endocrine will be of benefit—probably benefit of greater duration.

Unfortunately for me, and for those whom I have had to treat, endocrines came late on the field, so I cannot boast of very extensive knowledge of their employment.

OPERATIONS FOR THE RELIEF OF TINNITUS.

As I have already stated, my contention is that in future many fewer operations for the relief of tinnitus should be performed. I have myself destroyed the cochlea in five instances with one questionably good result. Other forms of operation have been advocated, and there has been a large proportion of fatalities. There is, practically speaking, not one proven cure.

Everybody who has dealt with tinnitus is aware that subjective noises are described by patients as noises in the ear, or noises in the head, and I think this differentiation is one of very considerable moment; especially is it of moment if the patient says that first they were in the ear, and now they are in the head, for what happens, no doubt, is this. A peripheral irritation causes a reflex irritability in the auditory centre, which is demonstrated by tinnitus. As long as the peripheral irritation, or any result of the peripheral irritation, remains, the tinnitus persists. If a catarrhal condition of the Eustachian tube occurs, which starts a tinnitus, that tinnitus will not cease if the catarrhal condition passes up into the middle ear, and causes any greater or lesser sub-inflammatory intratympanic condition, which, in its turn, may cause the formation or contraction of cicatricial bands. Hence, the necessity of early vigorous treatment to check a tinnitus in the early stages.

After tinnitus has been peripheral for a certain length of time, the outside duration of which I would myself place arbitrarily at three years, the subjective sound becomes central by what is termed catalysis; that is to say, a prolonged irritation of the central ganglion cells has caused the ganglion cells themselves to become diseased or disorganised. The tinnitus becomes central. I think that all one can do when this occurs is to try, if possible, by means of one's own will power or by careful medication, to enable the patients to tolerate and ignore as far as possible the annoyance to which they are subjected.

Pulsatory Tinnitus.

This is an interesting form of tinnitus; it is really the perception of the heart sounds as conveyed by the column of blood, and is always due to some form of obstruction to the clear outflow of sound, as opposed to the intake of sound. That is to say, that normally this sound, which is always present, is not perceived by the auditory nerve, because it has so free a power of passing through the tissues. The relief of this symptom, however, is not usually very difficult to obtain by the employment of digitalis, strophanthus, and hydrobromic acid.

The absence of any allusion to the employment of irrigation and rotation in the diagnosis of vertigo is, I am sure, likely to give rise to the belief that I have unintentionally omitted it. Such is not the case. I have nothing novel to add on this matter to the theories in modern text-books upon diseases of the ear. And I have carefully avoided discussing the effects of intracranial lesions and growths as going outside the province of this address.

LATE RICKETS AND OSTEOMALACIA IN DELHI.

AN ANALYSIS OF SEVENTY-THREE CASES.

BY GRACE STAPLETON, M.D., B.S. LOND.,
WOMEN'S MEDICAL SERVICE, INDIA.

THIS series of cases was seen at the Lady Hardinge Hospital, Delhi, during the years 1921–24, chiefly in the medical wards and the out-patient department, but at the same time many similar cases were passing through the obstetric and other wards, where, however, there was not the same opportunity to take full notes. No selection was made of the patients, except to exclude those where there was any doubt in the diagnosis. Late rickets was diagnosed when there was a clear history that the patient had been quite well and free from all deformity of the legs or other bones until at least 8 years old, and marked enlargement of the lower ends of the radius and ulna about the epiphyseal junction was present, while on X ray examination, where it is possible to obtain it, signs of active disease with defective ossification and cupping of the end of the diaphysis were shown. The accompanying photographs (Figs. 1 and 2) of B., aged 12, and H., aged 17, show the clinical condition, and the X ray print (Fig. 3) of N. the radiographic appearances. It was only possible to examine a certain number of the patients by X rays, as there was no apparatus working in the hospital and they had to be sent for examination to a male doctor in the town, to which arrangement some of these purdah women objected.

Grouping of Cases.

Osteomalacia was diagnosed when there were symptoms of pain in the lumbo-sacral region of the spine and thighs, often spreading to other parts of the body, difficulty in rising and walking, with the typical cautious, waddling gait, accompanied by tenderness in the bones.

Very soon after commencing the investigation one came to realise that they formed a fairly complete series, leading gradually from the typical late rickets case in young girls of 10, 12, and 14, through an intermediate stage in rather older patients in which the X ray signs of bony rickets were still present, but were accompanied by the deep-seated pains in the bones that are usually associated with osteomalacia, and then on to the well-developed forms of the latter disease that up to now has been thought to be mainly connected with pregnancy and lactation in young married women. The series, however, did not end here, but included women of 30 and 35, who were getting near to what in India is considered the later part of the child-bearing age, and terminated in two cases who had definitely passed the menopause, the elder of whom must have been at least 60, as she had been born a few years after the Mutiny.

Of the total cases 20 could be definitely diagnosed clinically as late rickets, as all showed enlarged wrist epiphyses, except a girl of 20 whose lesions had healed, together with some degree of beading of the ribs, though in nearly half it was only slight. Genu valgum or varum was present in 13 of the series. The wrist or the knee epiphyses of nearly half the cases were examined by X rays and the diagnosis confirmed. The age of these girls was from 10 to 20 years, and 16 of them were between 12 and 17.

Of the two who gave their age as 20, one, as stated above, showed the disease well past the active stage, but great deformities had been left, and the other was a case that dated back from early childhood with recrudescence at puberty and again following each pregnancy. On the whole the pain in these cases was not at all severe. They complained but little unless carefully questioned, and they had been

FIG. 1.

B., aged 12, Mussulman. Late rickets of four years' duration. X ray examination showed multiple spontaneous fractures of the right forearm.

brought for treatment owing to the difficulty in walking from the deformities more than for the actual pain.

The next group of cases numbered six and consisted of girls of 16 to 20 in whom the symptoms were more like those of osteomalacia—i.e., more marked bone pains in the lumbo-sacral region of the spine, the hips, spreading all down the legs, and also felt in the ribs, and to a less extent in the arms. The pain was by no means restricted to the ends of the bones. Accompanying it there was muscular weakness and a very real difficulty in walking. Genu varum or valgum was present in half the cases, beading of the ribs in four, and enlargement of the wrist epiphyses in three. In those patients of whom it was possible to get an X ray plate, changes in the ends of the long bones were found similar to those in the preceding group. The cases of true clinical osteomalacia into which the previous group gradually merged numbered 47, and the age-limit was again higher. Most of the patients were in the early twenties, only nine being 16 to 20 and six were 30 or over. The symptoms showed little variation between case and case and were typical of the disease. In certain of the younger patients signs suggestive of late rickets were still present. Five had prominent wrists, and these were all under 20, two of the same age showed very definite beading of the ribs, and in nine others the costochondral junctions were abnormally easily felt, these patients being from 17 to 22 years old. Eight showed bowed legs. The youngest patient might have been included in the previous group except that her history and symptoms were typical of osteomalacia. X ray examination of her enlarged wrists showed a condition which could not be distinguished from late rickets.

Place of Origin of the Disease.

The results of grouping the patients according to the districts from which they came were as follows:—

Delhi.—Lived from birth	24	Ghaziabad and neighbourhood	4
Village life in childhood	23	Rohtak and neighbourhood	2
And Simla, half the year in each	2	Meerut district	2
And Agra	1	Bulandshahr district	2
Neighbourhood	2	Secunderabad district	2

Also one each from the districts of Saharanpur, Bareilly, Muzaffarnagar, Aligarh, Shahdara, Barot, and Hardwar. In two no note had been made where the disease began.

From this it can be seen that the disease is very prevalent among girls who are used to unrestricted village life in childhood, and then, generally soon after marriage, are brought into the crowded quarters of the town. On the other hand, village life does not exclude the possibility of late rickets or osteomalacia developing if certain other conditions are present, as shown below.

Caste of Patients.

The patients were of the following religions:—

Hindu	55	Indian Christian	2
Mohammedan	15	Out-caste (sweeper)	1

The Hindus were further divided into castes as shown below:—

Banya	34	Thakur	2
Kahar	5	Kayasht	2
Brahmin	3	Sais	2
Jaini	2		

Also one each of Kathri, Sonar, Bhisti, Khyat, and caste unknown.

From this it may be seen that the great predominance in Delhi among the Banya women, and of these especially the Agarwala Banyas are affected. Many of these are well to do. Among the Mohammedans, on the other hand, the disease occurs more

FIG. 2.

H., aged 17, Brahmin. Late rickets of eight years' duration. Unable to walk for one year. Spontaneous fracture of each ulna.

among the poor, as only three of the 15 cases could be described as moderately well off, and at least four of the remainder said that they were in extremely poor circumstances.

Diet.

Of the total patients 51 were strict vegetarians, and their diet consisted of chapattie—i.e., bread in the form of pancakes made of coarse wheaten flour and water, with dal (pulse) and vegetables. Those in moderately good circumstances took milk and

fruit too, and the richer the patient the more ghi (clarified butter) would she use in the cooking of her food. The really well-to-do also had sweets made of sugar, curd, ghi, nuts, and flour. The ghi used is subjected to considerable heat in its preparation.

The non-vegetarian diet of the poorer patients was very like that of the vegetarian patient of similar standing, except for the occasional addition of meat,

FIG. 3.

Radiogram of wrist of N., aged 16, Mussulman, showing the characteristic rickety changes at the end of the diaphysis of the radius and ulna. Symptoms of six months' duration only.

generally goat, perhaps once a week. The better class ones took meat often twice a day. The cases were grouped as follows:—

—	Diet.				Total.
	Good.	Medium.	Poor.	Very poor.	
Vegetarian ..	18	25	8	—	51
Non-vegetarian	2	5	9	6	22

From this it can be concluded that the better vegetarian diet containing animal fat in considerable quantity is not sufficient in itself to prevent the disease from developing.

Home Conditions.

Some attempt was made to estimate the home conditions as regards sunlight, airiness, and overcrowding, but one soon realised that this could not be done with any precision without seeing the actual buildings. In a tropical country a poor person is often better off as regards fresh air than a well-to-do one, as the rough hut made of unbaked bricks and mud is only one-storied and the sunlight may easily enter the courtyard, even in the town. The better-class Hindu house in Delhi, on the other hand, is generally built with the purpose of excluding sunlight and providing privacy. It is two or three stories high and the rooms all open into the central courtyard. There are as few windows as possible in the outside walls. If the house is high, the women who live on the ground floor may have very little, if any, direct sunlight, the rooms are often dark, and the air may be fairly stagnant. The houses of the better class Mohammedans, on the other hand, are often built in a different style, and the rooms are more open and airy, and there is more courtyard space. This may partly account for the different incidence of the disease among the two communities. The poor Mohammedan, who keeps strict purdah, lives often in the worst hygienic surroundings of all, as even her courtyard, if the house possesses one, may be too public to use. As regards overcrowding, one found that the circumstances of the family did not by any means correspond to the accommodation available. For instance, one woman, whose husband was a clerk drawing good wages, stated that her family consisting of eight persons lived in two small rooms, and there was only a tiny verandah and kitchen besides, and another quite well-to-do patient from the same town shared a single room with three other persons. One of the poorer Mohammedan women, who spent her time weaving and spinning, described her home thus: "Small, one-roomed. No windows. Verandah small. No sun ever enters. Used by three adults and one child." She lived there day and night and only slept on the verandah in the summer.

Several of the other women said they had lived under very similar conditions. Another patient's history was difficult to understand at first, as she stated that she came from a village and had to take a certain amount of exercise to fetch her water every day, and they were not particularly poor; but two years later one had an opportunity of visiting the house and seeing the appallingly dark room which she had not left for months, and where she had spent the greater part of each day before the disease had entirely crippled her. As other cases might be as misleading as this one, it would be useless to do more towards classifying them according to their home conditions.

Relation to the Purdah Life.

Every patient was carefully questioned about her home life and customs in connexion with the observance of purdah, and the following striking results were compiled from their answers:—

	Cases.	
Strict purdah always observed	11	
.. .. not acknowledged, but contrary to custom to go out	8	
Never allowed out much in childhood and strict since marriage	13	
Allowed to play out of doors as a child, but kept in after marriage	15	
Unrestricted childhood, but after marriage allowed out very little	12	
Used to factory work, but discontinued some months before onset of illness and became purdah	2	
Not strict purdah, but prevented by illness from going out for many months before symptoms started	2	= 63
Not purdah, and used to a little out-door exercise	6	
Used to regular exercise	4	

In 86 per cent. of the cases, therefore, the disease was closely associated with purdah life.

Further inquiries were made into the last four cases. One was a beggar child of 10, whose history was not very reliable, and she had no relations to confirm her statements. Another was a girl of 16 of a well-to-do Banya family, who had begun to suffer from pains about her knees and wrists at the age of 10 or 11, but she continued to attend a day school in Delhi for the next two years until the increasing pain and difficulty in walking were severe enough to keep her at home. The third case was a Mohammedan of 22, whose family were too poor to observe purdah. She used to take a daily walk to visit a relative, who lived near some public gardens not far away, and she also went shopping in the bazaar, as long as her disease was not too advanced. As she lived in one small sunless room, she used also to go and sit in the sunlight in the lane outside.

The last patient was one who had certainly taken abundant exercise daily for many years. It was the only case of osteomalacia seen in a sweeper. She was married and went to live at her husband's house when only 7, and as they were poor began her work, that of removing refuse from Indian houses, at an early age. She worked for long hours, often amidst bad surroundings, and only gave up her daily work

because of the disease, which started in connexion with her third pregnancy at the age of about 22.

Age of Onset of Symptoms.

The following figures were obtained:—

Age.	Late rickets.	Osteo. and int.†	Age.	Late rickets.	Osteo. and int.†	Age.	Late rickets.	Osteo. and int.†
8–10	5	—	16	—	9	25	—	2
10	—	1	17	—	4	27	—	2
11	1	1	18	—	5	29	—	1
12	1	—	19	—	6	30	—	1
13	6	2	20	—	4	44	—	1
14	1	5	21	—	3	60	—	1
E.C.R.14*	1	—	22	—	1			
15	5	3	23	—	1	Total	20	53

* E.C.R.14 = Early childhood and recrudescence at 14.
† Osteo. and int. = Osteomalacia and intermediate cases.

Both diseases are therefore associated with the years of rapid growth of the body in the majority of cases. The last two cases were interesting in that they were typical in spite of their age. The old woman of over 60 had given birth to ten full-term children in her early married life with no difficulty, and had always had good health until she went on the pilgrimage to Mecca three years before. There she fell off her camel and injured her head, and was unable to walk for four or five months owing to pains in her limbs and back. Then she made a good recovery, returned to India, and kept well for two years, after which the osteomalacia symptoms gradually set in. On examination one found a triradiate pelvis of such a shape that it would be impossible for a full time child to pass. As she had spent all her money on the pilgrimage, she had lived in a very poor way in one dark, damp, ground-floor room ever since. The other woman had been used to taking a considerable amount of exercise in her younger days, as she frequently went to bathe in the river outside the city, but this had been gradually discontinued owing to increasing ill-health during the last eight years, and since a third attack of pneumonia the year before the disease had come on. She was a very severe case, completely bed-ridden, with much deformity of the chest, and tenderness in all the bones.

Relation to Menstruation, Pregnancy, and Lactation.

The onset was next considered in its relation to menstruation, with the following results:—

Before puberty	16
Relation to puberty not noted but occurred at ages 12–15	5
With or after puberty	50
After the menopause	2
Total	73

The disease therefore can occur both before and after the time during which the ovaries are functioning actively. The old method of treatment by removal of these organs could not on this account be always justified. The onset was then investigated in regard to its connexion with pregnancy, and the following facts were found:—

Onset—	Cases.
Before first pregnancy in	30
During ,, ,, ,, ...	14
,, successive pregnancy in	10
After delivery, in at least two of which patient was not lactating	4
During lactation	12
After weaning 3 year old child	1
Many years after last pregnancy	2

Among the 30 cases which developed the illness before any pregnancy had occurred all the 20 patients who had been included in the subdivision of late rickets on clinical grounds were found to be included, but apart from them there were the ten other cases. Osteomalacia in India is not only a disease connected with pregnancy. Neither is it one that occurs as the result of exhaustion from numerous conceptions, as the 14 cases occurring in the first pregnancy show when compared with the ten arising during the later pregnancies. Of these ten, three each occurred with the second and third pregnancies respectively, and only one with the fourth, two with the fifth, and one with the sixth.

Investigation made to determine as far as possible the time in the pregnancy when the symptoms commenced gave the following results:—

During 1st month ..	nil	During 7th month	4
,, 2nd ,, ..	,,	,, 8th ,, ...	1
,, 3rd ,, ..	2	,, last half of pregnancy	1
,, 4th ,, ..	4	Not noted	4
,, 5th ,, ..	4		
,, 6th ,, ..	4	Total	24

Of the 12 patients whose symptoms came on during lactation eight stated that they began to feel the pains within the first three months, and in a similar number it was the first child that they were nursing. It would again be difficult therefore to explain these cases on the grounds of physical exhaustion.

Onset in Relation to other Diseases or Injury.

In the majority of cases the disease was found to have come on insidiously with increasing bone pains and difficulty in locomotion, but ten patients gave a definite history of fever of various sorts having proceeded the osteomalacia symptoms, and in six others the symptoms followed an injury. Five patients stated that the disease had become much worse since an attack of fever.

Special Symptoms and Signs.

The history in most of the cases, especially the older patients, was very similar—i.e., deep-seated pains in the hips and lumbo-sacral region—spreading later to the ribs and sometimes widely over the body, always worse on movement, steadily increasing difficulty in rising and walking, often weakness and trembling in the legs, and in the end the patient becoming entirely bedridden, sometimes unable even to lift a water pot to give herself drink. Two special symptoms, however, were striking because of their frequency, one the occurrence of tetany, and the other that of spontaneous fractures. In no less than 30 out of 63 cases in which a record was made a history was given of definite tetany or attacks of cramps in the hands and sometimes the feet too.

Out of 29 cases in which it was possible to obtain an X ray photograph of the forearms or knees, signs of spontaneous fracture were found in 14. In many cases the patient was unaware that these had occurred, and had continued using their limbs so long as there was no accident to cause displacement of the fragments. One or two, however, were able to point to a small, slightly tender mass of callus along the posterior border of the ulna or elsewhere, and two were brought to hospital with malunited fractures of the lower end of the femur. One patient sustained a spontaneous fracture of the mandible while under treatment. Pelvic deformities, often of a very severe type, were found in a large number of cases, but the younger patients were not all submitted to systematic internal examination. Bending of the clavicles was noted in a few cases, and two adult patients showed very marked deformities of the thorax similar to those met with in infantile rickets.

Family History of the Disease.

In 20 out of 56 cases in which a note was made, the history was obtained of a similar disease having occurred among relations or neighbours. Seven patients had had a sister with similar symptoms, and the mother of another was said to have become very bent since the birth of this girl. Four related that another woman of a different family but living in the same house was affected.

Conclusions.

1. There is no sharp dividing line clinically between late rickets and osteomalacia cases, but intermediate cases are found showing characteristics of both. The difference in symptoms appears to be due to conditions of the tissues depending on the age of the patient.

2. The determining cause in the majority of cases is the lack of sunlight and exercise associated with the purdah life in North India.

3. The disease usually commences about puberty or in early adult life, but cases do occur occasionally in older women even past the menopause.

4. Osteomalacia is not uncommon in young women apart from pregnancy.

5. Tetany frequently occurs in the course of osteomalacia, and this suggests some close relationship between the metabolic disturbances that give rise to the two sets of symptoms.

These conclusions are in close agreement with those found in a previous paper[1] in which only the early cases of the series were used combined with others from Nasik.

The above investigation was carried out at the suggestion of the late Dr. H. S. Hutchison, of Glasgow.

COLLOIDAL KAOLIN.

I.

SOME PROPERTIES OF COLLOIDAL KAOLIN.

BY SIR WM. J. POPE, K.B.E., F.R.S.,
AND
R. T. M. HAINES, M.A.

ALTHOUGH china clay, or kaolin, is not acted upon chemically by physiological fluids, it is often used medicinally for internal administration. The ordinary kaolin of commerce is a powder of no extraordinary degree of fineness, but, since its medicinal applications depend upon an absorptive power which would be expected to increase with increased subdivision of the particles, it seems desirable that only the most finely divided kaolin should be used medicinally.

During the last few years methods have been devised for the separation of the larger or more gritty particles from kaolin and for the manufacture of a product consisting only of the more minute particles; the kaolin thus obtained is so finely divided that it shows colloidal properties when suspended in water. In view of the medicinal applications of this so-called colloidal kaolin it seems desirable to record its behaviour towards a number of reagents. The results now described were obtained with colloidal kaolin supplied by British Colloids, Ltd.; the material contained no agar and was the same as that used by Prof. Eyre. (See following note.)

A suspension of 1 g. of the colloidal kaolin in 100 c.cm. of water showed very numerous particles in vigorous Brownian movement on ultra-microscopic examination; for counting purposes a suspension containing 1 g. in 100 litres of water was used. The volume in which the count was made was—

$$27\mu \times 54\mu \times 1{\cdot}3\mu = 1{\cdot}9 \times 10^{-9} \text{ c.cm.};$$

this volume was found to contain 1·83 particles as the average of 52 counts. The suspension therefore contained $0{\cdot}94 \times 10^{9}$ particles per c.cm.; since 1 c.cm. contains 1×10^{-5} g. of kaolin, the average mass of the kaolin particles is $1{\cdot}1 \times 10^{-14}$ g., and 1 g. of the kaolin contains $0{\cdot}9 \times 10^{14}$ particles. These data concerning the size of the kaolin particles are, of course, not very accurate, but they show the order of the dimensions involved.

When shaken with water the kaolin remains in suspension for more than a week. The addition of 0·3 per cent. by volume of strong hydrochloric acid to the 1 per cent. suspension causes immediate flocculation, and the addition of 1·3 per cent. by weight of dissolved sodium chloride brings about complete precipitation within ten minutes. The colloidal suspension is not flocculated by the addition of moderate amounts of sodium hydroxide.

[1] Hutchison and Stapleton: British Journal of Children's Diseases, vol. i., pp. 18 and 96.

Kaolin a Negative Colloid.

The addition of the solid colloidal kaolin to negative colloidal solutions, such as those of arsenic trisulphide, antimony trisulphide, and the sensitive red colloidal gold, causes no change. When the kaolin is added to solutions of positive colloids, flocculation takes place immediately; thus, on adding the kaolin to colloidal ferric hydroxide solutions made (*a*) by dialysis of ferric chloride solution, (*b*) by steaming ferric formate solutions, or (*c*) by heating and dialysing ferric formate solution, the kaolin settles out, carrying with it the ferric hydroxide and leaving the supernatant liquor clear and colourless. These three colloidal ferric hydroxide solutions are the positive ones, A, B, and C previously described.[2] The flocculating effect upon these solutions shows the kaolin to be a negative colloid. Using a dialysed ferric chloride solution containing one part of iron in 2000 of solution, the smallest amount of colloidal kaolin which brought down all the ferric hydroxide was found to be 4·5 per cent. by weight of the solution itself; the original colloidal ferric hydroxide solution is acid to the extent of 0·0028 normal and the negative charge on the colloidal kaolin can be calculated in terms of caustic soda. The above results show that the kaolin corresponds to 0·25 per cent. of its weight of sodium hydroxide.

The adsorption of iodine from its aqueous solutions containing potassium iodide was also studied. On shaking a solution containing 1·45 g. of free iodine per litre with one-tenth its weight of kaolin and allowing to settle, 5 per cent. of the iodine is carried down by the kaolin; the concentration of iodine in the kaolin is thus about one-half of that in the supernatant solution.

Reaction with Dye-stuffs.

Basic dye-stuffs are removed from aqueous solutions by addition of colloidal kaolin. A stock solution containing 0·2 per cent. of night blue with a trace of hydrochloric acid was shaken up with the kaolin and allowed to stand, when deposition was complete in 12 hours; the addition of 5 per cent. by weight of kaolin removed 47 per cent. of the dye from the solution, and 10 per cent. of kaolin carried down 61 per cent. It will be noted that the concentration of the dye in the separating kaolin is many times greater than that in the residual solution.

Acid dye-stuffs are not adsorbed from aqueous solution by colloidal kaolin. Thus, kaolin does not settle from a 0·2 per cent. solution of erythrosine containing a trace of sodium hydroxide until an electrolyte, such as a minute quantity of solid calcium chloride, is added; the precipitated kaolin is quite white and tintometer comparisons show that no dye-stuff has been removed from the solution.

Amphoteric dye-stuffs behave differently towards colloidal kaolin in acid and alkaline solutions. Thus, a 0·01 per cent. solution of methyl-orange was divided into two parts, the one (*a*) being rendered faintly acid with hydrochloric acid, and the other (*b*) just made alkaline by addition of sodium hydroxide; 100 c.cm. of each was shaken up with 5 g. of colloidal kaolin. Solution (*a*) settled rapidly and the kaolin carried down with itself 68 per cent. of the dye-stuff originally present in the solution; it is noteworthy that the separated kaolin was coloured yellow or buff and not pink. Solution (*b*) did not settle until calcium chloride was added and the separated kaolin was quite white, no dyestuff being adsorbed.

It has now been shown that positive colloids are completely flocculated by colloidal kaolin whilst basic dye-stuffs are not completely removed from solution by the kaolin, but become distributed between the solution and the kaolin in proportions which can be determined.

This distinction is interesting in view of the results obtained by R. R. Walker in connexion with the action of kaolin on the cholera vibrio and on the toxin prepared from the bacilli; although it would appear

[2] Brit. Med. Jour., Feb. 9th, 1924.

that this worker used ordinary china clay which was not specially freed from the coarser particles his samples doubtless contained a large proportion of colloidal kaolin. Walker found that kaolin did not remove the vibrios from the suspension, although many were doubtless entangled in the depositing powder; he found, however, that the cholera toxin is entirely removed by the kaolin. The toxin, in fact, behaves just like the positive colloids referred to above and not like a basic dye-stuff; it therefore seems indicated that the toxin is a positive colloid.

II.

THE ABSORPTION OF TOXIN BY KAOLIN.

BY JOHN W. H. EYRE, M.S. DURH., F.R.S. EDIN.,
PROFESSOR OF BACTERIOLOGY, UNIVERSITY OF LONDON.
(*From the Bacteriological Department, Guy's Hospital.*)

IN 1921 Walker undertook some experimental observations (to which Sir William Pope refers in the preceding note) upon the absorptive properties of kaolin, the results of which explained in part its value when administered to cases of Asiatic cholera by Kulme at Nish, and Braafladt and himself in China.[1]

This work, together with the gradually accumulating mass of clinical evidence, has been followed by the exhibition of kaolin in cases of acute and chronic colitis in temperate zones; it has also stimulated manufacturers to prepare "medicinal kaolin" in a really fine state of division, and better still—in the colloidal form, and in some quarters, prompted no doubt by an appreciation of the action of agar when introduced into the atonic alimentary tract—to endeavour to enhance its value by the addition of agar-agar. When considering such a combination, however, one is struck by the possibility that the addition of agar—itself absorbent, though inferior to kaolin in this respect—might hinder rather than help the action of the kaolin. This possibility is strengthened by the results of a few experiments planned to demonstrate any possible difference in the absorbent power of colloidal kaolin (K) and colloidal kaolin plus agar (KA), both of which were supplied for this purpose from the Crookes's Laboratories.

A. *Absorption of Diphtheria Toxin.*

A quantity of a commercial diphtheria toxin was obtained and its lethal unit approximately determined by the administration of varying quantities to a number of young adult guinea-pigs of a uniform weight of 250 g.

Series I.

0·1	c.cm.	=	Death (in 15 hours).
0·0025	,,	=	,,
0·0016	,,	=	,, (,, 48 ,,).
0·0013	,,	=	Unaffected.

The result thus obtained was controlled by a second series of determinations.

Series II.

0·005	c.cm.	=	Death (in 23 hours).
0·0025	,,	=	,,
0·002	,,	=	,, (in 40 hours).
0·0016	,,	=	,,
0·0013	,,	=	Unaffected.

On the basis of these observations each cubic centimetre of the toxin was assumed to contain at least 600 lethal doses.

Kaolin-agar to the extent of 10 per cent. was now added to a portion of the diphtheria toxin and the mixture shaken vigorously for some minutes, then filtered through Swedish filter paper and the filtrate employed in the injection of a further series of standard guinea-pigs, thus:—

Series III.

0·2	c.cm.	= 120	m.l.d.	Death (in 18 hours).
0·1	,,	= 60	,,	,,
0·01	,,	= 6	,,	,, (,, 24 ,,).

Kaolin to the extent of 10 per cent. was now added to another portion of the diphtheria toxin and the mixture similarly treated, with the following results:—

Series IV.

0·2	c.cm.	= 120	m.l.d.	Death (in 18 hours).
0·1	,,	= 60	,,	,,
0·01	,,	= 6	,,	,, (,, 48 ,,).

[1] THE LANCET, 1921, ii., 273.

Under the conditions of these experiments no obvious difference between the kaolin plus agar and the kaolin could be demonstrated, as each preparation failed to adsorb any appreciable amount of toxin—indeed, if any adsorption took place, it was to a very slight extent, since the reduction in toxicity (if any) was less than the equivalent of six minimal lethal doses.

The experiment was then varied in the following manner: Diphtheria toxin was filtered through a layer of kaolin plus agar about 1 cm. in thickness. This was prepared by making a thick paste of kaolin plus agar with sterile water, smearing it on a perforated disc which was placed on a sterile funnel fitted to a filter flask, which was then thoroughly exhausted to remove excess of moisture from the kaolin bed.

Series V.

2·0 c.cm.	=	Death (in 21 hours).
1·0 ,,	=	,, (,, 20 ,,).
0·1 ,,	=	,, (,, 40 ,,).

Diphtheria toxin similarly filtered through a layer of kaolin gave the following results:—

Series VI.

2·0 c.cm.	=	Death (in 80 hours).
1·0 ,,	=	,, (,, 120 ,,).
0·1 ,,	=	Unaffected.

These two groups of inoculations bring into evidence striking difference in the adsorptive action of the two preparations. Kaolin plus agar possesses very slight action and is unable to reduce the toxicity even to the extent of six minimal lethal doses, whilst the native kaolin apparently adsorbs about 5 m. lethal doses.

The above experiments illustrate the action of kaolin preparations upon one type of bacterial poison—viz., the extracellular or soluble toxin. The majority of the pathogenic bacteria concerned in intestinal infections resulting in toxæmia depend, however, for their toxic properties on metabolic products stored within the protoplasm of the organisms and only liberated when the bacterial cell undergoes disintegration. To study the action of kaolin on this type of poison a member of the typhoid-dysentery group was selected.

B. *Action on Toxin of B. dysenteriæ.*

B. dysenteriæ (Shiga) when grown in peptone broth for some 48 hours at 37° C. and then killed by heating to 60° C. for one hour yields a fluid which, if injected intravenously into rabbits, causes a fatal toxæmia. In animals killed by this method death is preceded by diarrhœa, and the subsequent post-mortem examination shows: (1) A considerable quantity or excess of peritoneal fluid; (2) distension of intestinal blood-vessels and hæmorrhages; (3) considerable injection of the mesentery and omentum; (4) enlargement of the mesenteric glands; and (5) fluid blood in the heart.

Rabbits vary slightly in their susceptibility to Shiga's bacillus; therefore the toxicity of a killed culture of this organism, prepared as above indicated, was tested on two series of 1200 to 1500 g. rabbits.

Series VII.

Rabbit, 4·0	c.cm.	=	Death (in 48 hours)	Typical P.M.
2·0	,,	=	,, (,, 8 days)	
1·0	,,	=	,, (,, 7 ,,)	
0·1	,,	=	Unaffected.	

Series VIII.

Rabbit, 5·0	c.cm.	=	Death (in 24 hours)	Typical P.M.
2·0	,,	=	,,	
1·0	,,	=	,, (,, 3 days)	
0·1	,,	=	,, (,, 12 ,,)	

The inference to be drawn from the results of Series VII. and VIII. is that the toxicity of the killed culture in terms of minimal lethal doses is approximately two per cubic centimetre.

One portion of the killed culture of *B. dysenteriæ* was next filtered through a layer of kaolin plus agar, exactly as was done in the case of the diphtheria toxin. Next the filtrate was concentrated to one-third its bulk by evaporation at 37° C., when theoretically, 1 c.cm. should have contained five or six minimal lethal doses. This concentrated filtrate was used to inject 1500 g. rabbits as follows:—

Series IX.

10·0 c.cm.	= 50	m.l.d.	Death (in 19 hours).
5·0 ,,	= 25	,,	Unaffected.

Another portion of the killed culture was filtered through a similar layer of kaolin and then concentrated to one-third its bulk in the same manner. The injection of this concentrated filtrate produced the following results:—

Series X.

10·0 c.cm.	= 50 m.l.d.	Death (in 24 hours).
5·0 „	= 25 „	Unaffected.

In these experiments no very obvious difference between the pure kaolin and that admixed with agar can be shown, for the difference in the time (five hours) that elapsed between inoculation and death in the two rabbits receiving approximately 50 m.l.d. is too small for consideration.

LOCAL INSULIN REACTIONS.

BY R. D. LAWRENCE, M.D. ABERD.,*
CHEMICAL PATHOLOGIST, KING'S COLLEGE HOSPITAL.

BESIDES its general action on blood-sugar and carbohydrate metabolism, insulin causes definite local effects and reactions at the site of injection. These reactions vary with the individual, the site of injection, and the brand and batch of insulin used. The variations are not generally recognised and have been the cause of much worry to patients and to physicians who have had, perhaps, only a few insulin cases to treat. They have been the cause also of many complaints to the manufacturers about their insulin, and in some cases have led doctors to abandon the treatment, even where it seemed essential. It may accordingly be useful to summarise the most common reactions and to point out the circumstances in which they are most likely to occur and the way in which they may be minimised. A few detailed examples will be given of the effects of changes of insulin in a few specially sensitive individuals.

Immediate and Delayed Local Reactions.

The local reactions may be conveniently divided into *immediate* and *delayed*. In all cases it is the hypodermic injection of insulin that is described and not the intradermic or intramuscular. Injections into the skin itself meet with great resistance, cause an obvious pigskin appearance, and much local irritation, swelling, and pain. They should always be avoided and should be suspected as the cause of the trouble when patients who are beginning to administer their own insulin complain of much difficulty and pain. Intramuscular injection gives rise to no obvious swelling but to a deep-seated pain which lasts from 12 to 36 hours. The following local reactions are those which may occur when a hypodermic injection is skilfully carried out. All my patients keep their syringes in methylated spirit or absolute alcohol in a glass test-tube or metal case, and never sterilise them by boiling or strong antiseptics. In this way trouble is minimised, and not a single abscess or infection of any kind has occurred in patients of all classes and conditions. I have only one or two patients who do not administer their own insulin. These observations have been made with the British insulin of Messrs. Allen and Hanburys (A.B.) and of Burroughs and Wellcome (B. W.) and American Lilly insulin, and to a less extent with Messrs. Boot's insulin.

The *immediate local effect* of an injection of insulin is *stinging* at the site of injection. This is most marked during the first few days of treatment and is rarely troublesome after ten days. It is due to the slight acidity of the insulin solution and, if the patient finds the stinging very irksome, it can be largely removed by neutralising the acidity by sodium bicarb. as suggested by Dr. G. R. Stilwell.[1] I have never had occasion to use it. The tissues seem to acquire a local tolerance to insulin and stinging is likely to recur when the injections are changed to a new part of the body. They also recur quite frequently when a change is made to a different make or even a different batch of the same insulin. This often makes patients conclude that a particular batch of insulin does not suit them, while if they persisted with it the increased stinging usually disappears after one or two injections. Local *urticarial wheals* occasionally appear immediately on injection and often when the injection is partly intradermic. As might be expected, these occur most frequently in individuals sensitive to proteins. In certain cases it seems to be a slight anaphylactic reaction which occurs when a return is made to a brand of insulin which has not been used for some time.

Delayed local reactions are much more troublesome. They closely resemble vaccine reactions, and like the latter are more liable to occur in the obese. Thus they occur more frequently in women than in men. I have never seen them in a really emaciated case. They have occurred in about 30 per cent. of my cases. In such cases during the first day or two of the injections only the usual stinging results. About the third to the fifth day hot brawny swellings begin to appear at the site of injection, develop fully in 6 to 12 hours, and have usually disappeared again in 24 to 36 hours. They may cause much pain and irritation, and can be partly alleviated by cooling lotions. I have seen general pyrexia of 100° F. develop for a few days in one severe case. Usually these reactions begin to grow less after seven to ten days and disappear altogether after two or three weeks. Occasionally they persist much longer, but I have never seen them cause serious trouble for more than three months. Sometimes a change from one make of insulin to another makes them reappear for a week or two. Some patients seem to be much more liable to these delayed reactions if the injections are given in the arms instead of the abdomen and thighs. This type of reaction is probably due to the protein content of the insulin and great variations might be expected depending on the sensitivity of the individual. But I can offer no explanation of why they should occur in one part of the body and not in another.

Anaphylactic Reactions.

General anaphylactic reactions have been reported in a few cases by Wilder and Boothby[2] and by Williams[3] in America. So far they do not seem to have been recorded in this country. These reactions were characterised by the typical symptoms of urticaria, vomiting, collapse, &c., and occurred almost immediately after the injections. Wilder's cases were reported in the early days of insulin when it contained far more protein than it does now. And Williams's case suffered from anaphylaxis only when insulin made from pig pancreas was used (Lilly insulin), and not from beef pancreas. Many more individuals are sensitive to pig than to beef protein, and the probable reason why anaphylaxis has not been observed in this country is that British insulin is made only from beef pancreas. I have found local urticarial reactions more liable to occur with Lilly than with British insulin.

Prevention of Subcutaneous Thickening.

Subcutaneous thickenings and great toughness of the skin ensue when injections are continued too long in any one part of the body. These should be prevented by changing the site of the injection from one arm or thigh to another or to the chest or abdomen every week or ten days. Some patients are apt to use one limited part of the body too long because it is very accessible and convenient. On the other hand, I do not think it is best to change the site of injection from the leg to the arm, &c., at every injection, because in this way local tolerance to the sting of the insulin is never fully developed. But, of course, no two punctures should be made at exactly the same spot within 24 to 48 hours.

It must not be thought that many cases have much local trouble with their injections. The majority administer their own insulin with perfect equanimity

* Aided by a grant from the Medical Research Council.
[1] Brit. Med. Jour., Sept. 13th, 1924.

[2] Wilder, Boothby, &c.: Jour. Metab. Research, 1922, ii., 701.
[3] Williams: Ibid., 1922, ii., 729.

after the first fortnight and declare they feel no pain or discomfort. Occasionally, for no apparent reason, one injection causes more stinging, swelling, urticaria, or itching than usual. But usually it is found that there has been a change of the batch or brand of insulin which the patient had not noticed before being questioned. It may be useful to record briefly the typical vicissitudes of local reactions that have occurred in some of my closely observed pedigree patients.

Illustrative Cases.

A young male adult commenced Lilly insulin in May, 1923, with doses of 15 to 20 units. He experienced much local stinging and some swelling and delayed reactions for the first ten days, but these soon wore off. A month later he began to administer his own insulin in his thigh and the stinging and swelling recurred for a few days. He commenced British insulin (A.B.) in August and experienced no change in local reactions, although at that time Lilly insulin was stronger than British and he had to use much more of the latter. During September he used Lilly and A.B. insulin and noticed no difference in the local reactions. He used nothing but A.B. insulin until March, 1924, when he recommenced Lilly insulin, and for a few days had marked protein reactions, immediate urticarial wheals round the injection, and much local swelling, itching, and pain. He had obviously had time in the interval of six months to become sensitised to pig protein. When he changed to A.B. and B.W. insulin six months later, no protein reactions ensued. He is not sensitive to pig protein by mouth, and when he had an odd injection of Lilly insulin a few days ago it caused no protein reaction, probably because Lilly insulin, like all insulin, is now much freer from protein. He now uses both A.B. and B.W. insulin and nothing occurs locally except slight stinging, which occasionally becomes more marked when he changes the site of injection or uses a different batch of insulin.

An obese woman of 50 has had much trouble with delayed local reactions. These commenced on the fourth day of treatment when she was having two doses of 10 units. They became more severe and by the tenth day a hard, hot, brawny and painful swelling occurred at the site of every injection and were a great affliction. She felt general malaise and her temperature rose in the evening for two days to 100° F., for which no other cause than the insulin could be discovered. During this pyrexial period the insulin was partially ineffective and the dose had to be nearly doubled to obtain the same result. The reactions then began to decrease but were quite troublesome for another four months. Both A.B. and B.W. insulin caused these reactions, but after six months they had practically disappeared. When she changed her insulin from one batch of B.W. insulin to another (from batch 282 to 286) severe local reactions suddenly reappeared.

Another male patient, aged 62, commenced treatment with B.W. insulin and experienced severe stinging and delayed reactions which at once disappeared when he substituted A.B. insulin.

Variations in Quality of Insulin.

I do not think we can conclude in any way that one make of insulin is better than another, but that some brands and batches of insulin suit one patient better than another. Undoubtedly, pig insulin (Lilly) is more likely to cause protein reactions than ox insulin. It is no secret that great variations have occurred and probably do still occur to a less degree in the strength of different batches of insulin, and it would appear that qualitative changes whose effect can be observed on patients also occur. It is wrong to condemn a special make or batch of insulin because it seems to disagree with certain patients. Individual variations must be recognised and different preparations of insulin may have to be tried to suit exceptional cases. But we have every reason to be proud of and to congratulate the manufacturers on the high quality of the insulin produced in this country—and to be thankful for the low price.

Some Useful Points.

Every attempt should be made to make the daily injection of insulin as comfortable and easy as possible, and in this connexion the following points may be useful. It gives far the least trouble and is entirely satisfactory to keep the syringe and needle sterile in spirit in a metal case or glass test-tube. A non-irritant skin disinfectant must be found for every patient in whom variations to different antiseptics occur. The pain of the puncture can be minimised by the use of fine and sharp needles, by inserting the needle as nearly at right angles to the skin as possible, thus traversing as little skin as possible, as this is the painful part of the injection. Usually, by moving the point of the needle lightly over the skin it is easy to find a spot which is quite insensitive to the prick and where the injection can be made quite painlessly, because it avoids the nerve-endings for pain. The sting of the insulin is usually very slight and it can be made less by pinching somewhat vigorously the skin and underlying tissues into which it is being injected. The best sites for injection are the parts of the body where the skin is loosest and which are not subject to pressure or to much movement in the underlying muscles. The calves are unsuitable because the skin is very tight over them, and the best places for self-administration of insulin are the front and outer aspects of the thighs, the abdomen, and the lower part of the chest where both hands can be used in the injection. The forearms and outer sides of the upper arms are also available when someone other than the patient is giving the injection. By these means the initial repugnance that many patients feel to daily injections soon gives way to the indifference of an easy habit.

ACETYLENE, ETHYLENE, PROPYLENE.*

BY FRANCIS E. SHIPWAY, M.D. CAMB.,

SENIOR HON. ANÆSTHETIST, GUY'S HOSPITAL, AND LECTURER IN ANÆSTHETICS TO THE MEDICAL AND DENTAL SCHOOLS; SENIOR ANÆSTHETIST, ST. PETER'S HOSPITAL FOR STONE.

THERE are many unsaturated hydrocarbons, some of which have anæsthetic properties. Three of them, acetylene, ethylene, and propylene, have recently been the subjects of investigation, and as the reports of the first two, and the preliminary notice of the third, appear favourable to their anæsthetic value, it was decided to undertake an experimental and clinical inquiry into these gases. This work, with the coöperation of Prof. M. S. Pembrey, F.R.S., has been in progress at Guy's Hospital for some months. It may be said at once that whilst a favourable view has been taken of ethylene, acetylene, for reasons given below, was discarded after a short trial, and propylene has received as yet insufficient trial to warrant the drawing of definite conclusions.

The mode of action of these gases is not known. They are inert, non-toxic gases, carried in simple solution in the blood. If ethylene is passed through diluted dogs' blood the absorption bands of oxy-hæmoglobin remain unaltered. They are rapidly absorbed and rapidly eliminated. It is supposed that, like nitrous oxide, they have a direct action on the cells of the central nervous system by interference with oxidation. It is of interest in this connexion to note that ethylene anæsthetises certain plants. The Chicago carnation-growers discovered in 1908 that the illuminating gas used in the houses, which contains 4 per cent. ethylene, caused the flowers to go to sleep, and prevented the buds already showing petals from opening. A concentration of 1 in 2,000,000 parts of air is sufficient to cause these flowers to close. The same concentration had a similar action on castor-oil plants and sweet peas. These facts show that anæsthesia is a more complicated process than an effect upon a specialised nervous system. How these gases interfere with metabolism is not known. An investigation to decide the question is being conducted by Prof. Pembrey.

Animal experiments having been carried out by us with these gases, they were then used on patients. A sight-feed apparatus was employed, and anæsthesia was conducted upon the lines of nitrous-oxide-oxygen anæsthesia, with partial rebreathing. In some cases

* This research has been carried out on behalf of the Joint Committee of the Medical Research Council and the Section of Anæsthetics of the Royal Society of Medicine.

soda-lime was used to absorb the CO_2. In all cases a preliminary injection of atropine was given. Details of the animal experiments will be published at a later date.

I.—ACETYLENE.

The results of earlier workers[1 2 3] with acetylene were discouraging; experimental animals either died suddenly or after some hours if the concentration of acetylene was low, even though they had been removed from its atmosphere. Wieland,[4] during an investigation into the pharmacological properties of this gas, obtained similar results, and it was not until he experimented with pure acetylene that he was able to show that low concentrations are harmless even when administered for prolonged periods. He carried out an extensive research, and having demonstrated that the gas provides a safe and non-toxic anæsthesia, persuaded Gauss to give it a clinical trial. So satisfactory were the results that several thousand

narzylen in Germany, is put at a pressure of 15 atmospheres into steel cylinders filled with a porous material containing acetone, in which the gas readily dissolves. A 40-litre cylinder contains approximately 5 cb.m. acetylene. Impurities which have to be removed include chloride compounds and phosphoretted and sulphuretted hydrogen. The purified gas contains a very small amount of other CH compounds and some air. In order to remove acetone which comes over with the gas, special washing arrangements have to be provided. Another precaution against the escape of acetone is the provision of a meter which indicates the lowest working pressure—viz., 2–3 atmospheres. Acetone is unpleasant to inhale; pure acetylene is said to have no unpleasant odour. However this may be, it is customary to pass the gas through some substance (placed in the outlet valve) which has been saturated with a sweet-smelling oil. The gas which was obtained from Stockholm for the purposes of

TABLE I.—ACETYLENE.

No.	Sex.	Age.	Condition.	Operation for—	Anæsthetic.	Injection atropine or morphine.	Time, in mins.	Proportion of gases.	Vom.	Nausea.	Remarks.
1	M	12	Good.	Undescended testis.	Acet.-oxy.	1/100 A.	25	75 : 25 60 : 40	4	0	½ hr. after anæs. still dazed, completely conscious in 1 hr.
2	F	6	„	Tubs. cervical gland.	Gas-oxy. acet.-oxy.	1/100 A.	12	Do.	1	0	—
3	F	3	Toxic.	Exploration of hip-joint.	—	1/150 A.	45	60 : 40	0	0	Glycosuria before op., still present third day, absent fifth. Ethylene on previous occasion.
4	M	18	Good.	Hallux rigidus.	—	1/100 A.	43	60 : 40	1	0	—
5	M	24	Fat, nervous.	Rad. cure of ing. hernia.	—	1/6 M. 1/100 A.	23	60 : 40	0	Slight.	Urine normal after op.: 1·6 gr. M. during recov.
6	M	13	Good.	Undescended testis.	Acet.-oxy.	1/100 A.	37	50 : 50	0	0	Salivation at start. Urine normal after op.
7	F	38	Slight physique.	Hæmatoma of thigh.	Gas-oxy., acet.-oxy.	Do.	13	75 : 25	0	—	Nausea 12 hrs. Ethylene 14 days previously, nausea 12 hrs.
8	F	66	Stout.	Rad. cure of bilateral fem. hernia.	Acèt.-oxy.	Do.	60	75 : 25	3	0	1·6 gr. M. before end of op.
9	F	19	Hysterical, good physique.	Ext. piles and sigmoidoscopy.	Gas-oxy. acet.-oxy.	Do.	32	75 : 25	4	Slight.	No anal or rectal reflex elicited.
10	M	25	Muscular.	Varicose veins.	Gas-oxy. acet.-oxy.	Do.	33	75 : 25	1	0	Slight salivation. Urine next day contained diacetic acid and substance which reduced Fehling's solution.
11	F	31	Good.	Amputation of 2 phalanges	—	Do.	23	75 : 25	1	—	Coughing after induction.
12	M	8	„	Rad. cure of ing. hernia.	—	Do.	18	60 : 40	24 hrs.	—	Bronchial catarrh after op. for 48 hrs.
13	F	37	Toxic.	Pyosalpingectomy.	CE: acet.-oxy.	Do.	60	75 : 25 60 : 40	1	0	CE for 3 min. Salivation. Good relaxation 1/6 M. half way through op.
14	M	22	Good.	Rad. cure of fem. hernia.	Gas-oxy. acet.-oxy.	Do.	47	75 : 25	0	0	Salivation. Acute bronchitis following op. History of recent "cold."
15	M	21	Muscular.	Removal of lipomata of scalp.	—	Do.	15	Do.	0	0	—

Acet.-oxy. = Acetylene-oxygen. Op. = Operation.

successful cases of anæsthesia have been reported by Gauss,[5] and later by Solbach,[6] Döderlein,[7] and others.

Acetylene, C_2H_2, is lighter than air, and is very diffusible. It is soluble in water, 1 c.cm. of water dissolving 0·745 c.cm. at 37° C. at a pressure of one atmosphere. Blood under similar conditions dissolves slightly less—viz., 0·735 c.cm. Schoen and Sliwka[8] have shown that the percentage of acetylene absorbed by the blood is directly proportional to the partial pressure of the gas in the inspired air. In the first five minutes 88 per cent. saturation was found in the arterial blood of the rabbit, and saturation was complete in 17 minutes; elimination was complete in six minutes. In man, experiments with venous blood showed that 90 per cent. of the gas was eliminated in five minutes after withdrawal of the anæsthetic. Acetylene is non-toxic and highly inflammable. It forms explosive combinations with copper and silver. The dried and carefully purified gas, which is named the Committee by the Gas Accumulator Co., and is stated to be purer than narzylen, possesses a distinctly disagreeable and somewhat pungent odour, and leaves a bitter taste in the mouth. Some of this objectionable odour is certainly due to inefficient removal of acetone.

Wieland found by animal experiment that a mixture of 45–55 per cent. acetylene with 55–45 per cent. oxygen anæsthetises white mice. The percentage varies very little with other animals. If the percentage is increased to 80 and upwards respiration becomes rapid, shallow, and irregular, and finally ceases; artificial respiration restores breathing. There is no action on the heart or vasomotor centre; death takes place from respiratory paralysis. For clinical use a mixture of 70–80 per cent. with 30–20 per cent. oxygen is used for induction, and is gradually replaced by 50 or 40 per cent. acetylene. Acetylene anæsthesia resembles nitrous-oxide, ethylene, and propylene anæsthesia in its mode of action, non-toxicity,

rapidity of induction and elimination, and causation of death, but is superior to nitrous oxide and ethylene in depth of anæsthesia and in safety, for the percentage of oxygen is always higher than that contained in air. Unfortunately it is, like ethylene and propylene, inflammable, and the presence of a cautery or flame or electric spark in the immediate neighbourhood of the expired air is dangerous. Careful analyses [9] of the composition of the air of poorly ventilated operating theatres agree that the air contains a very small proportion of acetylene; near the patient's head the percentage was 0·8–1. Higher concentrations were never found. Von Sturm's figures agree with these. The explosion limits are 3·35–52·3 per cent. Hollemann places the lower limit at 3·82. Rimarski [10] states that the great diffusibility of acetylene and its slight concentration in the theatre account for the very large number of operations performed with the thermo-cautery without any disturbance. Döderlein was less fortunate.[11]

Induction with a 75 per cent. mixture of acetylene in oxygen takes place in about one minute without struggling or excitement, and without unpleasant sensations, except those of smell or taste; in order to overcome this objection gas-oxygen was administered in some cases for a few breaths, and acetylene then run into the bag with an increasing quantity of oxygen as the partial pressure of acetylene rose. Maintenance of anæsthesia for prolonged periods is easy, the percentage of acetylene being gradually reduced. The breathing is, as a rule, easy and quiet, but its character depends partly upon the type of patient and partly upon the method of administration —i.e., upon the extent of rebreathing. Rimarski [10] examined the composition of the expired air in 11 cases, and found that whilst the percentage of acetylene and oxygen in the samples analysed corresponded fairly accurately with the percentages registered by the Drager apparatus, the percentage of CO_2 never exceeded 1·7, the range being 0·5 to 1·7. With this apparatus the expired air escapes directly into the operating room. Solbach and Hazelhorst speak of the frequent occurrence of apnœa; this is certain to occur, owing to acapnia, if some rebreathing is not practised. The CO_2 content of the inspired air exerts a profound influence both upon the rate of breathing and the extent of peripheral vaso-dilatation, and therefore again upon the character of breathing by reason of congestion of the air-passages. Congestion leads to some degree of respiratory obstruction, and it is obvious that if the rate of breathing is raised, and the air-passages slightly obstructed, respiration will gradually become hampered and the tendency to obstruction increase, even in the presence of an excess of oxygen. This difficulty can be partly overcome by a lessening of the rebreathing factor; absorption of CO_2 by soda-lime completely removes it.

The presence of small quantities of acetone, which is irritating, produces in some cases swelling of the mucous membrane of the upper air-passages and salivation, and tends to embarrass breathing; no salivation occurred in our animal experiments. It is highly desirable to remove all traces of acetone, not only for this reason, but also because its odour is disagreeable to the patient if induction is carried out with acetylene. This removal, however, is difficult, as the gas, which is administered at about the rate of 3 litres per minute, carries over with it an appreciable amount of acetone. An elaborate washing apparatus was not considered desirable from the point of view of simplicity and convenience. The matter was therefore referred at my request by the Committee to Dr. H. King, of the National Institute for Medical Research. After many experiments Dr. King reported that "the only effective and economical system of washing would be the counter-current system, a tower filled with beads or Lessing rings of inert metal down which a thin stream of water is running, thus providing efficient washing surface for the upward current of acetylene." This method proved to be successful, "not a trace of acetone being found after passing 6 litres of acetylene in five minutes, the volume being about 300 c.cm. or equivalent to a column 8 in. high and 2 in. in diameter." This apparatus, besides being somewhat fragile, I found to be not wholly suitable for clinical use, for it requires the provision of a pipe or tube connected with a water supply for leading in water, and a second for removing it. The Drager apparatus used by Gauss contains a special washing apparatus, but there is some evidence to show that it is not entirely efficient. Goldman [12] has met with the same difficulty; he also states that acetylene loses some of its anæsthetic properties by the removal of acetone, which is known to be a weak anæsthetic.

The pulse in a normal case remains steady and full; if the partial pressure of CO_2 is high the rate slows and the blood pressure falls. Blood pressure usually falls slightly in a normal case. Muscle tone is much diminished, the eyelids being semi-relaxed and exposing the globes, which are fixed in the cadaveric position. Occasionally they roll slowly from side to side. The pupil is slightly dilated and reacts briskly to light. Conjunctival reflex is absent, corneal reflex present but dulled. Swallowing reflex is absent, cough reflex present. There was no reflex effect upon respiration during traction on the sac in Cases 5 and 8, nor during operation on Case 9 (Table I.). The amount of bleeding is slightly increased, but whether this is due to the action of acetylene or to the vaso-dilatation effect of CO_2 is not certain; judging from improved results obtained by absorption of CO_2 during ethylene anæsthesia I am inclined to think that acetylene is not the chief cause. Recovery is very rapid, consciousness being regained in 2–3 minutes. Acetylene could be smelt in the breath for some hours afterwards. Leake and Hertzmann [13] state that the pH of blood determined colorimetrically undergoes a slight fall.

It was tried in only one case of laparotomy—and then successfully—for I felt convinced that it would provide an inefficient anæsthesia in all but exceptional cases. It is possible that by cutting down the percentage of oxygen in the mixture a greater degree of muscular relaxation can be obtained, but this dangerous aid to anæsthesia is obviously undesirable. Care was taken on all occasions to administer not less than 20 per cent. oxygen, nor was it desirable to employ other adventitious aids to anæsthesia—e.g., ether and morphine and scopolamine—as this inquiry was undertaken with the sole object of ascertaining the merits and demerits of acetylene as an anæsthetic for surgical purposes. It is true that a preliminary injection of morphine was given to Case 5 (Table I.), but it was so given to allay undue nervousness, and the operation could well have been carried out with acetylene alone. Anæsthesia was in all cases completely satisfactory. But as the odour of acetylene, the removal of acetone, and the tendency to salivation seemed to present weighty objections to its continued use, the inquiry was abandoned, more especially as two other members of this group —viz., ethylene and propylene—appeared likely to afford more favourable results.

II.—ETHYLENE.

The history of the discovery of this anæsthetic is too well known to require narrating; a full account has been given by Brown,[14] and Luckhardt and Carter,[15] who first administered it to human beings. Possessing the formula C_2H_4, it has a specific gravity of 0·9784, boiling-point of −105° C., and melting-point of −169° C. It is sparingly soluble in water (0·149 c.cm. at 20° C.). It liquefies at 10° C. under a pressure of 60 atmospheres, and is pumped into cylinders at a pressure of about 1200 lb. Being an inflammable gas under pressure it is very sensitive to changes of temperature; the cylinders must not be stored near any source of artificial heat nor left in the sun. The relative explosion hazards of ethylene and ether when mixed with air or oxygen are practically equal. It is stated that metal tubing should be used for all connexions of the anæsthetic apparatus

as there is danger of a static spark occurring due to the friction of the passage of the gas through rubber tubing. Luckhardt[16] quotes two cases of explosion which are said to have been due to this cause. A mixture of 4–15 per cent. ethylene in air forms an explosive mixture, and if the oxygen percentage exceeds 40 an electric spark produces a violent explosion.[17] Experiments have failed to reveal detectable traces of ethylene after 1½ hours' continuous administration in a well-ventilated theatre. There is, then, no danger to be apprehended during ethylene anæsthesia if precaution is taken not to use a cautery, flame, or any source of electrical discharge in the immediate neighbourhood of the patient. Accidents due to neglect of this precaution have been recorded.

Ethylene has a slightly disagreeable odour, the strength of which seems to vary in different samples. Hewer[18] states that the gas made for him at St. Bartholomew's Hospital had a rather pleasant ethereal odour, differing from the pungent smell of imported ethylene. There are at present no standards of purity, but the manufacturers claim that they are improving their processes and obtaining a gas of better quality. Some patients object to the smell and also complain of an unpleasant taste in the mouth on recovery, others do not notice anything disagreeable during induction. The difficulty is overcome by induction with gas and oxygen, the change from this to ethylene being easily made. I confess that there were occasions at the beginning of this research on which I shared the dislike of the patient for this gas, and that the surgeons and I have not found ethylene to possess "a rather pleasant ethereal odour." My experiences with it, however, which corroborate those of other observers, persuade me that it is too valuable an anæsthetic to be condemned for this particular failing, and if the process of manufacture continues to improve there seems every reason to hope that this reproach may be entirely, or at any rate almost entirely, removed. In several of my cases a roseolous rash, similar to an "ether rash," has appeared very shortly after induction and has persisted for 10–15 minutes; in one of them it was vivid and affected the whole body. It does not seem likely that the presence of this rash is an indication of impurity in the gas, for it is known to occur commonly under ether and mixtures containing ether. Its presence, was, however, somewhat surprising, for I had not seen any record of it in the literature.

A mixture of 80 per cent. ethylene and 20 per cent. oxygen produces anæsthesia in mice and rabbits, but rats require a 90 per cent. mixture. In man, induction with 90 per cent. is rapid, consciousness being lost in one minute or less; the percentage of oxygen must then be gradually increased to 15 or 20; it is only in exceptional cases that more than 20 per cent. of oxygen can be given to adults. As with other anæsthetics, the nature of the operation and the type of patient are determining factors. The flow of the gases per minute through meters has been recorded in a few cases, examples of which are given in Table II.

TABLE II.

Sex.	Age.	Condition.	Operation for—	Injection.	Proportions of gases.
M.	56	Powerful build.	Injection of alcohol.	1/100 A.	40 lit. ethylene, 10 lit. oxygen.
F.	60	Frail.	Laparotomy.	1/100 A.	75 lit. to 21 lit. in 16 mins.
F.	47	Slight build.	Carcinoma mammæ.	1/6 M. 1/100 A.	Average per cent. Oxygen = 26·3.
F.	24	Muscular.	Rad. cure of ing. hernia.	1/100 A.	30 lit. to 12 lit. in 6 mins.

The relative proportions of the gases flowing through the sight-feed mixing chamber of the apparatus have been determined as accurately as possible; analysis of the gases taken from the face-piece during inspiration and expiration were made in two cases (Table III.).

TABLE III.

Sex.	Age.	Operation for—	CO_2.		O_2.	
			I.	E.	I.	E.
F.	31	Varicose veins.	2·5	3·0	27·8	22·5
F.	30	Thoracoplasty.	2·7	2·8	28	21

Luckhardt[19] finds that an average of 87·6 per cent. ethylene was used in 800 cases. It will be seen that this compares very favourably with nitrous oxide, but unfavourably with acetylene and propylene, and although 1100 cases have been anæsthetised at the Presbyterian Hospital, Chicago, without a fatality or any condition arising which was considered serious, it is no less true that an average of less than 13 per cent. of oxygen represents a shortage of oxygen, and signifies that wise selection of cases and careful and skilful anæsthesia are essential. The respiratory centre is paralysed by an overdose; artificial respiration restores breathing in the normal individual. Death takes place from failure of respiration.

The attempt to obtain satisfactory anæsthesia must not be met by cutting down the oxygen supply, but either by a preliminary injection of morphine or the addition of ether, very small quantities of which are needed to convert a refractory into a placid patient. High blood pressure, arterio-sclerosis, emphysema, myocarditis are conditions which contra-indicate the use of ethylene, for although the normal individual can withstand a cutting down of oxygen for a considerable time, the handicapped patient is seriously embarrassed, and not only does he run an undue risk during anæsthesia, but his recovery is prejudiced by the starvation of the central nervous system of oxygen and the strain thrown upon his cardio-vascular system by cyanosis. It is necessary to lay stress upon these dangers, not because they are not known but because they are in danger of being forgotten. If ethylene is to be adopted at all extensively its limitations must be known. It produces a degree of muscular relaxation which is definitely superior to that of nitrous-oxide-oxygen but much inferior to that of ether.

The operations in which I have used ethylene number 68, five being dental extractions. This is a small number, but sufficiently large to allow of a definite opinion of its value being formed, including, as it does, in adults, 10 operations for hernia, 11 on the limbs, 5 amputations of the breast (1 double amputation in a male), 4 thoracoplasties, 3 for pulmonary tuberculosis and 1 for pulmonary abscess, 3 laparotomies, 1 phrenicotomy, and removals of glands, testicles, hydrocele, &c. In one laparotomy no ether was used, in one ether was used for about a minute at the start of the peritoneal suture, in the other ether was substituted for ethylene. In children 15 operations have been done for hernia, tuberculous glands of neck, &c., the youngest child being aged 11 months.

Relaxation has been almost uniformly good. In addition to the cases already mentioned, ether was added in four other cases for a few breaths—e.g., during the skin incisions of amputations of both breasts in a robust male. A preliminary injection of morphine, gr. 1/6, has been given in 26 cases, partly with the object of calming a highly nervous patient and at the same time of supplementing the action of ethylene, but chiefly in order to ensure a recovery free from pain following extensive operations.

One child, aged 14 months, developed bronchitis after an operation for bilateral inguinal hernia; no other complications occurred. Albuminuria and glycosuria have not occurred. Acetone was smelt in the breath of two patients on the day following operation, and the urine of a child contained diacetic

acid. No systematic examination of the urine has been made. Vomiting occurs commonly during the return to consciousness and does not, as a rule, recur; ten patients vomited more than once, two of these severely. Thus the great majority of patients make an excellent recovery and are ready in a short time to take food or liquid. Oberhelman and Dyniewicz [20] found that the increase in blood-sugar and decrease in alkali reserve were less with ethylene than with ether, chloroform, or nitrous oxide; at no time in uncomplicated conditions did the change approach a dangerous level.

III.—PROPYLENE.

This gas, C_3H_6, which is colourless, has an odour somewhat resembling that of ethylene. Its density compared to air is about 1·7, boiling-point is −48·2° C. It is soluble in water, 100 volumes absorbing 44·6 volumes at 0° C. Absolute alcohol dissolves 12–13 volumes. It is liquefied at ordinary temperatures by a pressure of 7–8 atmospheres; 8 oz. of liquid propylene correspond to 100–110 litres of the expanded gas. Using cats as experimental animals, Easson Brown [21] found that concentrations of propylene varying from 50–37 per cent. produced good anæsthesia in a few minutes. Maintenance was carried on with 20–30 per cent. without any signs of poisoning. With concentrations of over 70 per cent. there was a fairly rapid fall of blood pressure. Anæsthesia was induced in man in two minutes with a 50 per cent. concentration; recovery was rapid, without any unpleasant after-effects.

The results obtained by Prof. Pembrey and myself with rats, a cat, and rabbit, using different concentrations, were satisfactory both as regards anæsthesia and freedom from signs of irritation; recovery was rapid. Propylene was then given to three adults, after a preliminary injection of atropine, two of the operations being for inguinal hernia, and one for the removal of a nævus; two of the patients were men of powerful physique. In all cases marked flushing of the face, neck, and chest followed induction; it gradually subsided. Consciousness was lost rapidly; in one patient unconsciousness came on after the second breath. Relaxation was good. Salivation, and in one case also lacrymation, was profuse. Recovery was quick, but less rapid than after ethylene. No vomiting, nausea, or broncho-pulmonary sequelæ occurred. The investigation was suspended at this stage until, by improved methods of manufacture, all impurities could be removed from the gas, for it was considered likely that the occurrence of these signs of irritation was due to the presence of unsaturated alcohols or aldehydes.

I wish to acknowledge my indebtedness to Dr. J. H. M. Campbell and Messrs. Skelton-Browne and Kanaar for undertaking gas analyses, and to the latter two for valuable assistance in other directions.

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Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF ELECTRO-THERAPEUTICS.

A MEETING of this Section was held on May 15th, Dr. STANLEY MELVILLE, the President, being in the chair, when the adjourned discussion on

High Voltage and Radio-therapy

was continued.

Dr. J. H. D. WEBSTER, in presenting a résumé of his previous paper,[1] remarked that the method of prophylaxis by means of intensive therapy had been violently attacked abroad; the question was whether the poor results there obtained were in some way dependent on the malnutrition of the patients following the war years. Other observers had claimed good results from one or two applications administered through wax, but on the whole he agreed that the medium voltage was best for prophylactic purposes. In his opinion, Dr. Gilbert Scott's method of general radiation was inadequate. The work of Sampson Handley had shown that any prophylactic treatment must be applied in advance of the appearance of physical signs and that the supraclavicular triangle was an essential danger zone. Yet this zone received the least amount of treatment in Dr. Scott's method. With regard to the question of a "stimulation dose" of radium, Dr. Webster had seen several cases where radium had been the apparent cause of a widespread recurrence all round the area treated. Radio-therapy must work hand in hand with pathology in all its branches, including morbid anatomy, histology of new growths, and the biochemical changes in the body.

Dr. GILBERT SCOTT pointed out that the effects of radio-therapy were both direct and indirect. At the present time it was possible to get any desired dose for surface treatment, and yet the position was unsatisfactory; radiologists could not expect to be satisfied with their treatment of deep tumours. Prophylaxis was very complicated because there was nothing tangible to treat; it was therefore necessary to assume the worst and endeavour to deal with a patient as if he had potential stray metastases all over his body. On such a hypothesis it would be wrong to restrict the treatment to any localised area. The indirect effect was concerned with stimulating nature to destroy the pathological cells herself. It should be possible to catch these cells while they were few and isolated, and to that end his method was directed. He admitted it was crude, but he was doing his best along those lines, and he combined it with local treatment. Nodules were liable to develop just outside the area which had been radiated, and it was therefore a mistake to treat in too local a way.

Prof. S. RUSS said that although it might be difficult to be sure of the indirect effects of radiation in patients, it was easy to get proof of them in animal experiments. A big dose could lower the resistance of an animal to an implanted growth while repeated small doses increased the resistance. The line along which deep X ray therapy had developed was that of the large dose; he thought that the best criterion was not the dose that would prevent the growth of cells, taking no account of the resistance of the individual, but the minimal dose consistent with a beneficial effect. The development of more penetrating radiations had gone ahead without sufficient experimental warrant.

Dr. ROBERT KNOX read a paper on the

Nature of Tissue Response to Radiations.

He said that the problem was in no sense strictly physical. It was of no use to produce higher and higher voltages or increasing quantities of radiation. There was a third factor which was a fundamental consideration—namely, the type of cell to be dealt

[1] THE LANCET March 28th, p. 661.

with, the phase of its activity at the time of exposure, and the fact that the response of normal tissues played a vitally important part in the treatment of disease. Attention must be centred on the cell as the ultimate biological unit, and in this connexion the blood was worthy of more observation as a valuable guide in therapy. A complete blood-count should always be done before any treatment was initiated. Abnormal types of cell, such as myelocytes, were far more susceptible to electro-therapy than the more fixed forms. Illustrating the "indirect effect," Dr. KNOX showed a number of charts demonstrating the continued diminution in the white blood cell-count in leukæmic cases after the cessation of treatment. He was in sympathy with Dr. Scott's method and was convinced that something on those lines would prove an important development in radiation therapy in the near future, particularly in the prophylactic treatment of carcinoma. Therapy should aim at control rather than at a knock-out blow. It was possible so to sensitise the tissues with a course of radiations that an alteration in the quality and voltage would then be followed by a striking result.

Dr. G. W. MITCHELL said that he had never seen a case of stimulation or acceleration of a growth due to radiation. He objected to the use of the term "prophylaxis" when dealing with "recurrence." He believed that much harm had been done by the intensive treatment; he had given up the lengthy periods of application and now distributed the doses over two or three days, often giving seven or eight treatments. He described various cases which had been successfully treated in this way. He expressed his belief in the method of widespread treatment in the prevention of recurrences.

Dr. N. S. FINZI said that radiation treatment was at present in a state of flux. It was very important to decide whether a neoplasm was originally a local disease, only subsequently becoming generalised, as was usually stated, or whether it was a general disease, as suggested by Thurstan Holland and Dr. Scott. He asked whether the generalised treatment for carcinoma had ever been successful; cases treated by X rays and radium often remained well for many years. It appeared that the softer radiations did not do so well in carcinomata nor endotheliomata; for these conditions radium or mixed treatment should be used, the X rays alone being more suitable for sarcoma. Epithelioma of the tongue, particularly, showed very bad results if treated with radium, although recent reports from Paris showed more satisfactory statistics. Lymphosarcoma responded readily to any type of ray. Local treatment of growths and also of metastases was successful in a certain number of cases if applied over a wide enough area. It must be admitted that intensive treatment was dangerous, but it was an attempt to deal with a dangerous disease. Cases should be grouped as to whether the aim was palliation or destruction of the growth. In the first group, Webster's method was satisfactory; in the second group more penetrating methods should be employed. When very penetrating radiations were used a late effect was found to occur, some months after, and this must be remembered when another kind of treatment was being applied after an interval.

The Prevention of Radiation Sickness.

Radiation sickness was now of infrequent occurrence except where the upper abdomen was being radiated, and then it was inevitable. To avoid it in other cases the room should be thoroughly ventilated, corona-less leads must be used, and the ends of the tube must be protected from corona; ozone and nitrous oxides must be expelled from the air of the room and chloretone administered. It was better not to give too much at one time; the treatment might be spread over days or weeks. The danger of harm to the lung was largely one of method; treatment of the mediastinum should be avoided where possible, but damage to the lung was not an inevitable result if care were taken.

Dr. F. HERNAMAN-JOHNSON agreed with Dr. Scott's method. He considered that in dealing with breast cases which had been operated on under favourable conditions it was not justifiable to take risks. Such patients had a fair expectation of life in any case, and the radiologist must not do anything to harm them. The basis of treatment should be the lines followed in dealing with tuberculous patients—i.e., attempts to raise the general resistance with special attention to the particular area under suspicion. He was accustomed to radiate widely, shielding the face only, with small doses, 1½ to 2 milliamps. with a 3 mm. filter for 10 to 15 minutes. Under such treatment tumours might entirely disappear and patients would say they felt much better and stronger. An effort should be made to treat the body as a whole, but the system would only stand a certain amount as shown by the blood effects produced by over-treatment. Sunlight and ultra-violet rays raised the blood-picture and courses of this treatment should alternate with exposure to X rays.

Dr. J. E. A. LYNHAM described the successful treatment of a case of tonsillar tumour with extensive involvement of the cervical glands. Preliminary treatment with X rays appeared to make the condition worse, but improvement immediately followed the insertion of radium needles in the throat. Possibly the earlier treatment sensitised the patient. The condition continued to improve after the suspension of treatment. Similarly, the best results in inoperable carcinoma of the uterus had followed the use of radium at the primary focus followed by wide irradiation of the pelvis. The size of the aperture appeared to have considerable importance, as revealed by experiments, on chemical solutions.

Replies.

Dr. WEBSTER, in reply, agreed that if the X ray bath were given over a wide area it must be given for a very limited period of time. Much depended on the total volume dose, which was very difficult to work out. He did not consider that Dr. Scott had established his views, and asked him to publish cases. In reply to Prof. Russ, he pointed out that the experimental evidence was concerned with implanted tumours; there was no evidence that generalised small doses improved spontaneous growths.

Dr. SCOTT, in reply, agreed that varying dosage was of great importance; it was a mistake to stick to one method only. He considered that by the time a cancerous patient reached the radiological department his disease was undoubtedly to be regarded as a general one. The aim of the radiologist should be to prevent distant metastases ever occurring.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this Society was held at the University on May 13th, Dr. J. O. SYMES, the President, in the chair, when Mr. A. W. ADAMS read a paper on a case of

Fibrocystic Disease of the Humerus.

He introduced the subject by slides, showing the process of ossification at the epiphyseal line of long bones, a region particularly susceptible to disorders affecting growth, as well as to infections. Diseases of the osseous skeleton were then classified into age-periods, and also by ætiological factors. Twenty-eight slides were next shown to illustrate achondroplasia, rickets, multiple exostoses, septic infection of bone, syphilis, tuberculosis, osteitis deformans, and multiple enchondromata. Regarding primary and secondary neoplasms, Mr. Adams pointed out that quite good union might occur in a bone which had suffered a spontaneous fracture from neoplastic metastasis, and advised treatment of such fractures on usual lines. In the diagnosis of primary neoplasm of bone neither skiagraphic nor pathological evidence was so satisfactory as clinical experience. An illustration of one case of osteogenesis imperfecta and

a skiagram of another were shown. Regarding osteitis deformans, of which a case was shown wherein one tibia only was affected, observed over a period of five years, the softening and bending were noted, and also the tendency for arrest of the process after a time; attention was called to the frequency of sarcoma occurring in such bones as a late phenomenon. The literature of fibrocystic disease of bones was reviewed and attention called to the frequency with which this affected one bone only, as compared to multiple cases. The comparative frequency of the affection arising in certain positions was observed, such being the upper end of the humerus, both ends of the femur, and the upper end of the tibia. Mr. Adams described his case, where the condition occurred in a boy at the upper end of the humerus and first seen 16 months previously; spontaneous resolution had occurred after three fractures. No treatment beyond splinting had been attempted. Mr. Adams thought such a course in this disease had not previously been described. He put forward the view that the disease tended to occur at joints allowing of rotatory movement, and suggested that repeated rotatory strains might be an element in ætiology. An endocrine factor had also been suggested.

Dr. T. C. BRENTNALL asked Mr. Adams whether it was indeed a fact that rotatory strains were greater at ball-and-socket than at hinge-joints. He thought that such joints as the shoulder, where rotation was a normal movement, suffered less trauma than hinge-joints from rotatory stresses.

Mr. A. R. SHORT mentioned another case of fibrocystic disease, of which they had seen the specimen that night; in this, both tibia and femur were affected.

Mr. C. A. MOORE referred to a case under his own care in which pathological evidence from different sources on the same piece of tissue was very varied. He agreed that spontaneous fractures due to neoplastic metastasis may be successfully treated on ordinary lines, and mentioned a case of simultaneous fracture of both femora treated in this way.

Reviews and Notices of Books.

CYTOLOGY.

The Cell in Development and Heredity. Third edition. By E. B. WILSON, Da Costa Professor of Zoology, Columbia University. New York: Macmillan Company. 1925. With 529 text-figures. Pp. 1232. 36*s*.

THE first edition, in 1896, had 371 pages and 142 figures. The present contains about four times as much. It is beautifully produced, and with a slightly larger page and rather smaller type it is less than twice as thick and weighs only 70 per cent. more. To commend its substance is superfluous. To English readers Wilson on the cell is *the* book on the subject, and in its new form it will continue to provide information, refreshment, and inspiration to those who go to it. Twenty-five years has been a long time to wait for a revised version, but the delay was perhaps wise. The rediscovery of Mendel's work coincided with the publication of the second edition in 1900, and the stormy metamorphosis of Prof. Wilson's subjects which ensued was hardly the time for stocktaking. Chromosomes and their manœuvres seemed at one time rather a dead topic. The wonderful concordance of cytology and the outward appearances of things which has been revealed in the meantime are the fullest justification of Prof. Wilson's persistent faith that there was more in them than there seemed. And he has provided once again one of those rare great books which are a starting-point for fresh knowledge, because they are a real statement of what is known. Every biologist should thank him.

PARASITOLOGY FOR MEDICAL STUDENTS.

By ALEX. MILLS KENNEDY, M.D. Glasg., Professor of Medicine, University of Wales; Honorary Physician, Cardiff Royal Infirmary. London: Humphrey Milford, Oxford University Press. 1925. Pp. 142. 10*s*. 6*d*.

Prof. Kennedy has found it advisable when teaching medicine to give demonstrations in order to recall to students the essential features of those parasites which are of practical importance from the point of view of the physician. In this little book, based on his clinical teaching, he has succeeded in presenting within the limited compass of 138 pages of text, richly supplied with illustrations, an account of the salient features and life-history of these parasites, and has added brief notes on the diagnosis, prophylaxis, and treatment of diseases caused by them. The six chapters are devoted to insects and arachnoids, tape-worms or cestodes, flukes or trematodes, round worms or nematodes, sporozoa, spirochætes, and fungi which are inimical to man. On the whole the teaching is that generally accepted. The author treats as separate and distinguishable three species of human pediculi, whereas we believe that modern zoological opinion recognises but one species. In the account of *Filaria bancrofti* no mention is made of thick films as being essential for the demonstration of this parasite. No mention is made of the newer methods of treatment of trypanosomiasis.

Parasitology in its application to medicine, especially tropical medicine, is a subject which, year by year, is looming larger in the curriculum. So many and diverse are the technicalities with which an undergraduate has little concern that a simple account of the more familiar parasites will be welcomed by medical students, and also by practitioners who have no time to study full monographs on the subject. Some of the microphotographs are quite excellent, notably those illustrating the first chapter. Others are less well reproduced, and this criticism applies especially to some of those depicting the various helminthic parasites. But here, as indeed elsewhere, the text is clear and easy to follow, even without pictures. We predict success for this handy little volume.

MICROBIOLOGY AND SEROLOGY.

Manuel Technique de Microbiologie et Sérologie. Par le Prof. A. CALMETTE, S. Directeur de l'Institut Pasteur; L. NEGRE et A. BOQUET, Chefs de Laboratoire à l'Institut Pasteur. Paris: Masson et Cie. 1925. Pp. 568. Fr.30.

THIS volume constitutes a compendium for those in charge of a bacteriological laboratory. Nothing, from the care of laboratory animals up to the preparation of antitoxic sera on a large scale, has escaped the attention of the authors. On all subjects they speak with authority. There has hitherto, to our knowledge, been no book available covering quite this field, and it should prove of inestimable value to all those charged with the ordering of a bacteriological laboratory, no matter how small or how large.

MEDICINE.

Manual of Medicine. Fifth edition. By THOMAS KIRKPATRICK MONRO, M.A., M.D., President of the Royal Faculty of Physicians and Surgeons of Glasgow; Regius Professor of Practice of Medicine in the University of Glasgow; Physician to the Western Infirmary. London: Baillière, Tindall and Cox. 1925. Pp. 1033. 25*s*.

IN the last edition have been incorporated new articles on lethargic encephalitis, seven-day fever, and tularæmia. The articles on diabetes and disturbances of the heart's action have been rearranged. There appears to be need for some rearrangement of the

space allotted to certain sections; it is difficult to justify the allotment of 240 pages to diseases of the nervous system and only 110 to the digestive system, including the peritoneum. We have now such anomalies as the dismissal of cardiospasm in four and a half lines, whereas two pages are given to Landry's paralysis. We have read accounts of aphasia in other text-books which were fully as lucid and more in accordance with modern views than that here given. The revised section on diabetes would be improved by greater detail concerning the starvation methods of Graham and Allen; we are doubtful if any student could for himself work out an effective scheme of treatment from the description given in this book, but that could only be expected.

The volume would, we think, gain in value if the unillustrated section on skin diseases were omitted and the matters to which we have referred were revised in accordance with the space thus gained. The book is so helpful in most respects that meagre or too highly compressed sections are the more to be deprecated.

Nouveau Traité de Médecine. Edited by G. H. ROGER, F. WIDAL, and P. J. TEISSIER. Vol. XIV., *Digestive System.* Vol. XXII., *Muscles, Bones, and Joints.* Paris: Masson and Co. 1924. Each volume about 560 pages. Fr. 45. per vol.

THESE new volumes of the "Nouveau Traité de Médecine" conform to the high standard of their predecessors. They are profusely studded with plain and coloured illustrations, diagrams, and X ray photographs in such a manner as to give the reader an excellent survey of the diseases dealt with both from the pathological and clinical standpoints. The fourteenth volume completes the description of diseases of the alimentary canal, and is chiefly remarkable for the section on the pathology of the rectum, by R. Bensaude. Vol. XXII. will be found of value by all medical men interested in orthopædic problems. The section dealing with congenital dystrophies of bone, by O. Crouzon, is particularly instructive, and gives beautiful illustrations of such rare conditions as cleido-cranio dysostosis and the Klippel-Feil syndrome. The article on Rickets, by Prof. L. Spillman, of Nancy, forms an admirable survey of existing knowledge of the subject.

We are again able strongly to recommend this treatise to our readers.

PHYSIOLOGY.

An Introduction to Recent Advances in Comparative Physiology. By L. T. HOGBEN and F. R. WINTON. London: W. Collins and Sons. 1925. Pp. 242. 25*s.*

WHETHER form determines function or function form is as insoluble a problem as whether the owl or the egg came first. The classical comparative anatomist has not paid as much attention to physiology as he might, and the purest physiologists have shown a tendency to put structure by and pass histology over to the anatomists. Most common men have been content with the obvious fact that structure and function are insolubly connected with one another, and there has been in recent years a rapidly growing conviction that the methods of thought and action developed in modern physiology might with advantage be extended and applied to live organisms with a wider variety of anatomies than is shown by mammals and the frog. Hence we have the Society and *Journal of Experimental Biology*, and the permeation of zoological literature with physiological conceptions. The present admirable series of essays will convince any sceptic that the movement is a good one, from which much fruit may be anticipated. The book is no attempt at a systematic survey, but, in imitation perhaps of the Recent Advances in Physiology and Further Advances which Dr. Leonard Hill organised so successfully some 15 years ago, deals with a series of interesting topics chosen partly because they represent growing points, and partly because the authors felt moved to write about them. The chapters are on the fertilisation of the egg, the development of the individual, sources of vital energy, the mechanism of response, coördination, behaviour in animals, hereditary transmission, the material basis of inheritance, and the determination of sex. The last three are perhaps over-written subjects just now, but in all the essays the zoologist will find information brought in from human physiology, while the human physiologist will learn how extraordinarily curious and interesting are some invertebrates, and may appreciate the extent and fascination of the unworked field which lies among them. The writing is clear and easy to follow.

DEVELOPMENTAL ANATOMY.

A Text-book and Laboratory Manual of Embryology. By LESLIE B. AREY, Professor of Anatomy at the Northwestern University Medical School, Chicago. London and Philadelphia: W. B. Saunders Company. 1924. Pp. 433. 27*s.* 6*d.*

THIS volume is at first sight but a new and slightly varied edition of Prentiss and Arey's well-known manual, but a closer inspection shows that Prof. Arey's statement in his preface, that in plan and content the work is essentially new, is justified. We are glad to see a recognition of F. M. Balfour's fundamental work in this book. A good, though short, account of changes in form during growth is given. Many of the excellent illustrations are taken from Prentiss and Arey, and these, with the new drawings, form a valuable part of the work. Figs. 6, 166, and 312 require some editorial attention, as do also parts of the text. No normal human heart goes through such developmental stages as are shown in Kollmann's figures, reproduced in Fig. 177 of this work; such figures ought to be relegated to obscurity. These faults are minor matters, hardly detracting from the general excellence of the book, which we recommend without hesitation to students as a good and very readable treatise.

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY.

The History of 100 Years of Life of the Leeds Philosophical and Literary Society. By Lieut.-Colonel E. KITSON CLARK, Hon. Secretary. Leeds: Jowett and Sowry, Ltd. 1924. Pp. 249.

THE Leeds Philosophical and Literary Society was founded in 1818 mainly owing to a letter to the *Leeds Mercury* by Edward Baines, jun. (afterwards Sir Edward Baines). Colonel Kitson Clark quotes the letter in full, and considering that it was written by a boy aged 18, its style and matter are astonishing to read nowadays. To take one passage:—

"In the full possession of youthful vigour, and in the unrestrained flow of intellect and imagination, how can a young man be more usefully or honourably employed than in the acquisition of knowledge, which must render him respectable and superior in life, and in the cultivation of those noble powers which alone exalt man to an infinite height above the brutes. . . ."

Incidentally such a style must have been fairly common among the educated young at the beginning of the last century, for some of Jane Austen's incomparable young women talk in the same way. The society being formed naturally desired a building wherein to meet, and such a building was accordingly erected in Park Row and opened in 1821. The first report of the society contained some information which will surprise no one—namely, that the original estimate for land and building which had been £4000 had been exceeded by at least £1000. This deficit was made up by the generosity of two members, Mr. J. Marshall and Mr. Benjamin Gott.

Colonel Clark's history is very complete; he gives a list of all the original members, with many extracts

from the annual reports, and comments thereon, together with some account of the various lecturers and their lectures. In one place we fancy that owing to a natural desire to exalt the year 1818 he has erred, for he says on p. 2 of that year that "Turner and Landseer were at their zenith." The former we should say was at his great period from 1820 to about 1840, but Edwin Landseer was only 17 in 1818, and John Landseer, Edwin's father, is chiefly known by his engravings after his son's pictures. Colonel Clark gives a full list of all the lectures delivered and papers read before the society from 1819 to 1920, which makes most interesting reading. The society appears to possess a historian worthy of its well-deserved renown.

AN OUTLINE OF ENDOCRINOLOGY.

By W. M. CROFTON, B.A., M.D., Lecturer of Special Pathology, University College, Dublin; Pathologist, Dr. Steevens' Hospital, Dublin. Edinburgh: E. and S. Livingstone. 1924. Pp. 126. 6s.

THIS book contains the substance of the lectures Dr. Crofton has delivered annually at University College, Dublin, since 1910. It consists of ten chapters, of which the first six are devoted respectively to the pineal, pituitary, suprarenal, thyroid, parathyroid, and thymus glands. Chapter VII. deals with the gonads, Chapter VIII. with the hormones of the gastro-intestinal tract, and Chapter IX. with the pancreas, while the last chapter is entitled Epilogue. The subject-matter is illustrated throughout by reference to clinical examples and has been brought well up to date. Indeed, in some places, notably Chapters IV. and IX., the results of recent and as yet uncontrolled work are accepted without reserve. The volume is handy, easy to read, and is written in an attractive style. The closing chapter dealing with theoretical conceptions is in parts not easy to follow. The illustrations are well chosen and for the most part new.

THE ENGINES OF THE HUMAN BODY.

Second edition, revised and enlarged. By Sir ARTHUR KEITH, M.D., LL.D., D.Sc., F.R.S., Conservator of the Museum and Hunterian Professor, Royal College of Surgeons. London: Williams and Norgate. 1925. Pp. 343. 12s. 6d.

Prof. Keith's book embodies the Christmas lectures delivered to an audience of boys and girls at the Royal Institution in 1916–17, and this second edition has increased by 60 pages without increase in price. In the meantime the author has become secretary of the Institution and his services to anatomy publicly honoured. The increase in size is due to the necessity of expanding certain growing subjects, such as the muscles of athletes, thinking and health, vitamins, insulin, and hormones, and the human body as a society of microscopic units. The additions are mainly to be found in appendices. In its new form the book, while scrupulously based on the facts of structure, goes far to redeem anatomy from the stigma of a dull subject and anatomists from being dull fellows. In every page structure is correlated with function in such a way as to make the workings of the body clear to the unlearned, whether or not they have outgrown girlhood and boyhood.

JOURNALS.

BRITISH JOURNAL OF OPHTHALMOLOGY. April–May. —In the April issue Prof. Schiotz gives fresh corrected graphs to be used with his tonometer. At present, unfortunately, tonometers are not all similarly adjusted. A centre has been established at Oslo where this can be done, whence also adjusted tonometers can be obtained.—Prof. O. Leser, of Prague, writes on the Development of the Extra-ocular Muscles in Some Mammals, and W. Gordon Byers on cases of Traumatic Keratitis in the New-born, a condition which, by means of the slit-lamp, is now proved in the living subject, as it had been already proved post mortem, to be due to the rupture of Descemet's membrane.—W. S. Duke-Elder writes on Changes in Refraction in Diabetes Mellitus. His principal conclusions are: (1) In diabetes sudden changes of refraction occur. In the course of the disease with high or increasing sugar, myopia tends to occur; with decreasing sugar, and therefore usually just after the onset of energetic treatment, hypermetropia tends to occur. (2) The phenomenon is due to osmotic processes involving the lens, caused by a variation of the molecular concentration of the blood and tissue fluids with the sugar-content. (3) In both cases the tendency is to recur to normal: in the first under general diabetic treatment; in the second on the establishment of metabolic stability.——In the May issue G. Riddoch and C. Goulden write on the Relationship between Sub-arachnoid and Intraocular Hæmorrhage. This is a reprint of a paper read before the Ophthalmological Section of the Royal Society of Medicine in June, 1924. About the same time Leslie Paton read a paper on the same subject to the Ophthalmological Society.[1] They should be read together. Appended to the present paper is a bibliography containing references to 67 previous writings on the subject, mostly by neurologists and ophthalmologists.—David Priestley Smith carries on the traditions of a well-known name in his article on Centripetal Fan Scotoma in Glaucoma. It includes charts of several cases of chronic glaucoma showing a scotoma tapering from the periphery of the field towards the fixation point, and not connected with—nor leading towards—Mariotte's blind spot. To discover these scotomata in early typical cases it is almost essential to use the circular method in perimetry. The borders of the area of maximum blindness are more radial than concentric, and, of course, the border is more accurately located when the test objects meet it at something like a right angle.—I. Abramovitz, of Vilna, records a case of such severe injury to the eye from liquid ammonia (10 per cent.) that it had ultimately to be eviscerated. The ammonia had been awkwardly administered during a fainting fit, and the liquid had flooded the eyes.

THE VETERINARY JOURNAL for April is made up of 22 articles by various medical and veterinary authors on the subject of tuberculosis in all its phases. Articles on the Prophylaxis of Bovine Tuberculosis by Vaccination by Mr. Guérin, of the Pasteur Institute at Lille, and Dr. Nathan Raw, advance promising views. In neither case has trial lasted a sufficient time to speak of definite result, but the authors have made out an a priori case for further trial in dairy herds.—The Danger of Tuberculous Milk as a Risk to Man is dealt with by Dr. Stanley Griffiths, and the Eradication of Tuberculosis from the Milk-supply has a number of articles under the respective authorships of Colonel J. W. Brittlebank (Manchester), Dr. John Robertson (Birmingham), Dr. A. Stenhouse Williams (Reading), Prof. J. Lyle Cummins (Cardiff), Mr. Male, and others.—The Veterinary Inspection of Cattle for the Eradication of Cows with Tuberculous Udders is advocated by Messrs. Lloyd, Burndred, and Pollard, the municipal veterinary officers of Sheffield, Blackburn, and Halifax respectively, whilst the prevalence of the disease in the pig, dog, cat, guinea-pig, and rabbit receives mention from the pens of Messrs. Mayall and Gray, who are veterinary practitioners.—The views of Prof. Moussu, of the Paris (Alfort) Veterinary School, on Anti-tuberculosis Vaccination, as at the Present Time Applied in France, are given in an article translated from the *Recueil de Médecine Vétérinaire*, and other aspects of the question are dealt with in abstracts from current literature. The special number is worthy of perusal by all who are interested in public health work.

[1] Trans. Oph. Soc., 1924, p. 110.

PROCEEDINGS OF THE ROYAL COMMISSION ON NATIONAL HEALTH INSURANCE.*

(*Continued from p. 1098.*)

EVIDENCE OF VARIOUS APPROVED SOCIETIES.

Prudential Society.

(App. XXI. and Q. 9627–9786.) Mr. R. J. Meller, M.P., and Mr. E. F. Spurgeon gave evidence, and said that they had not much to add to that of the National Conference of Industrial Assurance Approved Societies. The Prudential Approved Societies, four in number, have a total membership of over 3 millions. Interesting sickness experience tables show the actual as a percentage of the expected sickness for five years; for 1923 the figures were 63 per cent. for men and 83 per cent. for women. The witnesses were of opinion that there had not been a long enough normal period on which to base estimates for future rates.

They advocated giving insured women on marriage the option of (1) a cash bonus to terminate their insurance, or (2) a continuous insurance, with the ordinary "free year," &c., instead of the special benefits at present provided. Treatment benefits, in particular dental benefit, should, they thought, be rendered available for all insured persons, and should be financed through the existing Central Fund, the first charge on which should be, as at present, the meeting of societies' deficiencies. Such treatment benefits (e.g., dental benefit) should be minimum benefits and capable of being supplemented by societies having surpluses remaining after paying their contribution to the Central Fund. For this reason, amongst others, these treatment benefits should be administered by the Approved Societies and not by the Insurance Committees.

As regards the medical service now provided, Mr. Meller said:—

> I think the medical service is vastly improved from the earlier days, but I think it still falls far short of what medical service should be; not so much from the point of view of the incompetency of the practitioner, but from the point of view of the narrowness of the service which is given.

National Amalgamated Approved Society.

(App. XXV. and Q. 10390–10636.) The evidence of this Society (Sir Thomas Neill, Mr. Farmer, and Mr. Pike) was on somewhat similar lines to that of the Prudential. Membership, 2¼ millions. Investments, nearly £11,000,000. Sickness experience of men in 1923, 67 per cent. of expectation; of women members, 101 per cent. The disablement benefit of women has been no less than twice the expectation.

The Society drew special attention to the heavy burden on the funds due to tuberculosis, and suggested that the Commission should invite particulars from societies generally, and give publicity to the facts and so help to concentrate public opinion on the need for more closely tackling this disease and possibly for compulsory segregation. As regards "additional benefits," a substantial part of this Society's surplus had been devoted to contributions to the voluntary hospitals. Of the treatment benefits, dental treatment came easily first, and the Society is spending £90,000 per annum on it. Of every 100 applications now being received for the following treatment benefits the proportions in each case are:—

Dental	71
Optical	18
Convalescent home treatment	7
Medical and surgical appliances	4

With regard to medical benefit, the witnesses considered that Medical Service Subcommittees are satisfactory. In the refereeing of special benefit claims the procedure followed was to get a "Harley-street man" to select suitable cases for reference, and send them to the Regional Medical Officers of the Ministry.

United Women's Insurance Society.

(App. XXIV. and Q. 10174–10389.) Lady Emmott, Chairman, and Mr. Alban Gordon, Secretary, gave evidence. The Society has 54,000 members, two-thirds of whom are domestic servants and the remainder clerks, nurses, and shop assistants. Its sickness and maternity experience has been light, and the outstanding feature of the Society's administration was the early use made of Section 21 (subscriptions to a charitable organisation) for providing dental and other benefits to its members. A separate organisation was brought into being in 1914, called the United Women's Benevolent Association, for the purpose of providing these extra benefits.

The Society, in this way, has had ten years' experience of a dental scheme. Full details, scales of pay, &c., are given. The benefit includes all surgical dentistry free and half cost of dentures. It has been provided through a central clinic in London and a panel system in the provinces. The tables given show a total expenditure on dentistry of £41,000 and a consequential saving of sickness benefit and disablement benefit estimated at £14,000. It is considered that the gross total cost of an all-in scheme of dental benefit should not exceed 5*s.* 3*d.* per member per annum, of which a substantial portion could be recovered from the individual member.

It was agreed that schemes under the section referred to might properly be subject to more control by the Ministry of Health. In fact, if dental treatment were to be a benefit under the Act, it might suitably be administered by the Insurance Committees.

As to panel as opposed to clinic treatment the evidence contains the following:—

> With regard to administration through private dentists or panels of dentists, the great difficulty to be contended with is that caused by the practitioner who either states, or more generally implies, that the article which he will furnish under the panel scheme would be distinctly improved upon by the payment of a small supplement by the member. Even graver and more difficult to cope with is the tendency on the part of the less scrupulous practitioner to indulge in the more profitable work of extractions and provision of dentures rather than the more arduous but more beneficial conservative work which is generally recognised to be the better from the patient's point of view.

This Society considers that there should be a comprehensive medical service, and with regard to the present system of contributing to hospitals out of surpluses, it expressed profound dissatisfaction.

> Owing to the attitude adopted by the authorities of the majority of hospitals, such payments are a benefit to the hospital without being a benefit to the member, because the hospitals receiving such a payment from the Society do not accept this as being made on behalf of the member, but still require her to contribute the same sum that she would have contributed had the Society not made a payment on her behalf.

National Conference of Friendly Societies.

(App. XXVI. and Q. 10637–11027.) This evidence (Mr. J. W. Shaw, Mr. A. J. E. Saunders, and Mr. W. Marlow) covers similar ground to that already

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* In previous articles the proceedings of the Commission were reported under the following headings: Introductory Note; The Scope of the Insurance Scheme (see THE LANCET, Jan. 31st, pp. 247–8); The Provision of Medical Benefit (Feb. 7th, pp. 301–3; Feb. 14th, pp. 355–6; Feb. 21st, pp. 403–5); Financial Provisions of the Act (Feb. 28th, pp. 454–7); Medical Certification and the Regional Medical Staff (March 7th, pp. 508–9); The Approved Societies and the Money Benefits (March 14th, pp. 564–5; March 21st, pp. 623–4); Evidence of the Hearts of Oak Society (March 28th, pp. 677–9); Evidence of the National Conference of Industrial Assurance Approved Societies and of the Manchester Unity Approved Society (April 4th, pp. 731–3); Evidence of Independent Order of Rechabites, of Rational Association Friendly Society, and of Miners' Societies (April 11th, pp. 784–6; April 18th, p. 839); Evidence of Mr. Alban Gordon (April 18th, pp. 839–40); Evidence of Joint Committee of Approved Societies, of Stock Exchange and Lloyds' Health Insurance Societies, and of Group of Catholic Approved Societies (April 25th, pp. 889–91); Evidence of the National Insurance Beneficent Society (May 2nd, pp. 943–4); Evidence of the British Medical Association (May 9th, pp. 995–5); Evidence of the British Dental Association and other Dental Organisations (May 16th, pp. 1044–6); Evidence of the Insurance Committees (May 23rd, pp. 1097–8).

References to the paragraphs in the printed statements issued as appendices to the reports of the oral evidence are given thus: "App. X. 69," and references to the oral evidence thus—Q. 1369.

given by the large Friendly Society orders—a proposed limitation of cash benefits, the need for a scheme of dental treatment (with a possible limitation to one-half of the cost in the case of dentures), and general objection to the pooling of surpluses.

As regards the medical service for the insured, it is pointed out that if there was a mere extension of the present service to dependants of insured persons, this would (*a*) greatly intensify the overlapping of services already existing; (*b*) be extremely costly, because a large number of panel practitioners would be, in effect, working full-time on payment basis devised for part-time work; (*c*) leave out of the scheme at least 1½ millions of persons, including not only the destitute, but a number of non-insured persons such as hawkers, small shopkeepers, and others.

It is therefore suggested that the best way of organising the provision of medical treatment is to merge all existing forms of public medical service (including medical benefit under the National Health Insurance Acts) into one National Medical Service, thereby creating one unified organisation for the prevention and cure of disease. It was realised that this was an ideal not capable of being immediately put into practice. The conference was of opinion that in the meantime consultant and specialist services should be provided for insured persons.

Other Societies' Evidence.

Other evidence given prior to the presentation of that submitted on behalf of the medical profession was as follows:—

Seamen's National Insurance Society (App. XXXI. and Q. 11906–12236).—Sir Norman Hill explained the exceptional needs of the sea service, and the special arrangements in force for attendances at the various ports by specially engaged doctors paid according to an agreed scale; the system has worked well and there has been no cause of complaint. He suggested a new method of collecting contributions in respect of foreign-going seamen, to stop the deplorable loss of contributions which was going on at present. Sir Norman Hill also gave evidence as to the Lascar fund which is fed by contributions in respect of foreign domiciled seamen; 600 pensions are offered each year out of the fund and grants are made also to seamen's hospitals.

National Federation of Rural Approved Societies (App. XXIX. and Q. 11393–11750) and the *Scottish Rural Workers' Approved Society* (App. XXX. and Q. 11760–11905).—The Federation's evidence contains some rather general criticisms of the doctors for failing to observe the certification rules, suggests that panel doctors are mostly overpaid and that the capitation fee should diminish on a scale after the number of insured persons on a doctor's list exceeds 500, and complains of the inadequacy of the reports of the Regional Medical Staff. The Scottish Society's evidence includes a proposal that complaints in regard to certification should be dealt with by the Scottish Board of Health direct instead of under the present cumbersome machinery.

National Federation of Employees' Approved Societies (App. XL. and Q. 13143–13441).—This Federation includes societies of the Employers' Provident Fund type. Mr. Lesser gave evidence. The Federation is opposed to any fundamental reconstruction of the national health insurance scheme such as administration on a territorial basis through local authorities; it does not consider that experience at present is sufficient to justify dental treatment as a normal statutory benefit. As regards the medical service under the Acts, it is stated that these societies have almost daily experience of the need for supplemental services, although some of the most necessitous cases can be relieved by referring members to institutions to which the societies contribute.

Royal Insurance Officials' Benevolent Association (App. XXVII. and Q. 11028–11201).—This Association would prefer to remain under the National Health Insurance Acts if the surpluses of the Society can be fully secured to its own members. At the present time, within a short period of a member qualifying for additional benefits, he ceases to be insurable and loses all title to share in the disposal of the surplus he has helped to build up.

MEDICINE AND THE LAW.

THE ABRAMS SYSTEM IN THE LAW COURTS.

THE High Court of New Zealand made an order in March last for removing from the Medical Register the name of Dr. Dundas Mackenzie, an exponent of the Abrams system of diagnosis and treatment. The hearing of the proceedings occupied nine days and attracted considerable attention. From newspaper reports now available it is at length possible to obtain a clear idea of the charge, the evidence, and the judgment in the case. As we have not yet had a test case in the law courts of this country, it is perhaps worth while to record what has happened elsewhere.

The charge of infamous conduct, which the High Court of New Zealand has held to be proved, was not based upon the mere use of the Abrams system. The Medical Board which initiated the proceedings did indeed suggest that no scientific foundation has yet been established for Dr. Abrams's claims; but the Board's contention was that, whether the system was genuinely valuable or not, this particular exponent had used it as a medium for perpetrating a fraud on the public. The specific charge was that he practised the system "in such a manner as to show that he could not honestly have believed that that method of treatment and diagnosis was a reliable and useful one in the case in which he employed it." The evidence in support of this allegation related to some 20 cases. It indicated that Dr. Mackenzie (who admitted in the witness-box that he had claimed to be a cancer specialist though he had had no special training to support the claim) had told patients not only that they had cancer, but they had it in an aggravated form—and this without a shadow of justification. He repeatedly stated that his system would cure and that other treatment would fail. Conversely, Dr. Mackenzie had announced that a woman had no sign of the disease, though two well-known Auckland doctors had diagnosed cancer. Those doctors, he said, were butchers who should not be allowed to practise; the lady merely had some minor trouble which he could easily cure with about 30 treatments. At the end of the period he told her husband that she was cured. Soon after she was found to be in an advanced state of cancer; there was an operation, but she died a few days later. Interspersed amongst evidence of this tragic character there were ludicrous incidents of blood sample tests of lamb's and donkey's blood which had been sent to Dr. Mackenzie as human specimens and which elicited remarkable diagnostic results. Professional witnesses, if they displayed any scepticism towards the Abrams system, were confronted in cross-examination with enthusiastic views attributed to Sir James Barr and the more guarded opinions of Sir Thomas Horder were quoted. After a patient hearing the High Court came to the conclusion that only one inference was possible—namely, that Dr. Mackenzie had no honest belief in the usefulness and reliability of the system which he practised. In the words of the judgment delivered by Mr. Justice Herdman, if a practitioner leads the public to believe that a system in which he has no faith can detect disease and can be used to check or cure disease, then he is not acting honestly and in good faith, and his behaviour brings itself within the phrase "infamous conduct in a professional respect."

In fairness to Dr. Mackenzie it should be stated that evidence was tendered on his behalf to prove that his treatment had effected cures. But the Court observed that this evidence was not supported by the witnesses' former medical advisers, and added that there was no conclusive or convincing proof that cure or improve-

ment was due to the Abrams treatment. In fairness, too, to the Abrams system itself, it must be repeated that the merits of the electronic theory and the oscilloclast were not the primary issue in the case. On the other hand, the one solid inference established by judicial inquiry in the proceedings in Dr. Mackenzie's case is the fact that the exponent who pressed the Abrams system upon the New Zealand public, and who practised it so extensively, did not really believe in it himself.

HARNETT *v.* BOND AND ADAM: JUDGMENT OF THE HOUSE OF LORDS.

THE House of Lords delivered considered judgments dismissing the appeal of Mr. W. S. Harnett against the decision of the Court of Appeal in his action against Dr. C. H. Bond and Dr. G. H. Adam arising out of the detention of the plaintiff at Malling Place, Kent, and elsewhere, and out of the course taken by Dr. Bond in causing his return to the licensed home kept by Dr. Adam, which he had left on probation.

The general outline of the case will be remembered. At the end of the trial before Mr. Justice Lush, the jury answered certain questions left to them by the judge, assessing damages against the two defendants jointly at £25,000. After argument Mr. Justice Lush entered judgment against the defendants jointly for £20,000, and in addition against Dr. Bond for £5000. The Court of Appeal directed that judgment should be entered for Dr. Adam and ordered a new trial in the case against Dr. Bond, and against this Mr. Harnett appealed to the House of Lords.

The Lord Chancellor, in giving judgment, gave an outline of the facts and referred to the questions answered by the jury:—

1. *Q.* Did Dr. Bond cause the plaintiff to be detained at the office until the attendants came for him?—*A.* Yes.
2. *Q.* Did he cause him to be sent back for the purpose only of his being examined by Dr. Adam or for the purpose of his being detained at Malling Place?—*A.* Being detained at Malling Place.
3. *Q.* Did Dr. Bond cause the plaintiff to be taken back?—*A.* Yes.
4. *Q.* Was the plaintiff of unsound mind on Dec. 14th, 1912?—*A.* No.
5. *Q.* Was he fit to be at large?—*A.* Yes.
6. *Q.* Was he dangerous to himself or others?—*A.* No.
7. *Q.* Did Dr. Bond honestly believe that the plaintiff was of unsound mind?—*A.* No.
8. *Q.* Or that he was not fit to be at large?—*A.* No.
9. *Q.* Or that he was dangerous to himself or others?—*A.* No.
10. *Q.* Did he believe that the plaintiff had escaped from his brother's charge? If so, was that his reason for having him sent back?—*A.* Yes.
11. *Q.* Did he take reasonable care to ascertain the true facts?—*A.* No.
12. *Q.* Did he honestly believe that Dr. Adam had retained a power of taking the plaintiff back during the 28 days in the leave of absence order?—*A.* Yes.
13. *Q.* Did Dr. Adam when he received the telephone message and sent the car honestly believe that the plaintiff on Dec. 14th was of unsound mind and unfit to be at large?—*A.* Yes.
14. *Q.* That it was in his interest that he should be taken back to Malling Place?—*A.* Yes.
15. Did he take reasonable care in acting as he did?—*A.* No.
16. *Q.* Did he make it known to the plaintiff that he was liable to be retaken if his mental condition required it?—*A.* No.
17. *Q.* Was the detention of the plaintiff at the Commissioners' offices the act of Dr. Bond alone or was it really the act of both the defendants?—*A.* Dr. Bond.

It was common ground, Lord Cave said, that Dr. Bond acted for the reason given in answer 10, and not on account of any belief as to Mr. Harnett's mental condition referred to in answers 7, 8, and 9. Mr. Justice Lush had directed the jury that they might assess damages upon the footing that the whole of the confinement of the plaintiff after his return to Malling Place was a direct consequence of the defendants' acts on Dec. 14th, 1912, and as a result had given judgment for £5000 damages against Dr. Bond, and for £20,000 against both defendants. The Lords Justices had held, however, that the chain of causation had been broken at innumerable points after the date mentioned, and also that Dr. Adam, under the terms of the leave of absence order given to Mr. Harnett, was entitled to retake him within 28 days, if in his honest opinion it was necessary, and that there was no evidence of want of reasonable care on his part.

As to the case against Dr. Bond, Lord Cave had no doubt that if the jury's finding as to Mr. Harnett's mental condition on Dec. 14th, 1912, was assumed to be correct, Dr. Bond had no right to cause Mr. Harnett to be detained at the Commissioners' offices pending the arrival of the motor-car sent by Dr. Adam to fetch him back, and on this assumption Dr. Bond was liable for damages for that detention. The damages, however, must be confined to the direct consequences of such an act. It appeared to him to be impossible to hold that the detention of Mr. Harnett by Dr. Bond was the direct cause not only of his being retaken and conveyed to Malling Place, but also of his being confined in that and other houses until October, 1921. Dr. Bond could not and did not direct or authorise Dr. Adam to retake Mr. Harnett, and with regard to that retaking, to his confinement at Malling Place, and to his detention in the other places, where he was confined, each of these occurrences was a *novus actus interveniens* which broke the chain of causation. Further, there were the various examinations of Mr. Harnett by the proper authorities during the nine years of his confinement. It might be a question at the new trial whether the direct consequences of Dr. Bond's action ceased when Mr. Harnett was handed over to the attendants who took him away, or later when he arrived at Malling Place or when he was examined there by Dr. Adam. In any case, the consequences could not extend, in his Lordship's view, beyond 7 P.M. on Dec. 14th, 1912. It had been argued that the damages of £5000 might be justified as having been given in respect of that period, but the finding was obviously coloured by the words of Mr. Justice Lush, who, in summing-up, referred to "the whole purpose for which he was detained." The whole matter, therefore, ought to receive fresh consideration by a jury.

With reference to the case against Dr. Adam, Lord Cave pointed out that though the pleadings charged him with conspiracy and false imprisonment, no direct question as to either of these charges was left to the jury. The charge of conspiracy, if not abandoned, was negatived by the jury's answers to questions 13 and 14. The answer to 17 negatived any complicity of Dr. Adam in the detention at the Commissioners' offices, and there was no finding of false imprisonment at Malling Place. Dr. Adam must have been held liable upon the answer to question 15, as not having taken reasonable care, but the pleadings did not allege want of reasonable care, and the question only arose on the defensive plea of Dr. Adam under Section 330 of the Lunacy Act. Dr. Adam was entitled on this ground alone to judgment, but his Lordship would also examine more closely the findings of the jury and the evidence.

Firstly, was there any ground for charging Dr. Adam with conspiring with Dr. Bond to detain Mr. Harnett at Malling Place or elsewhere? There was no evidence to support such a charge, and it was negatived by the finding of the jury. Secondly, as to false imprisonment—that is to say, retaking or detaining the plaintiff without proper authority. The medical officer was empowered by the leave of absence order to take back the patient "if his condition requires it," and this could not mean that he was to be retaken at the risk to the medical officer of having it found by a jury many years afterwards that the patient's mental condition was consistent with his remaining at large. Thirdly, there was the jury's finding as to want of reasonable care, on which stress had been laid. It had been said that the onus of proving reasonable care was on the defendant and that if he failed to prove it the retaking was void. This seemed to the Lord Chancellor to be fallacious. There might be a remedy if negligence were proved, but only by an action for

negligence, not by an action for false imprisonment. He agreed, however, with the Court of Appeal in their view that there was no evidence of negligence to go to the jury and that Dr. Adam was entitled to judgment.

In conclusion, the Lord Chancellor said, public anxiety had arisen owing to the finding of the jury as to Mr. Harnett's long detention having been the result of what was done in December, 1912, when, according to the jury's view, he was sane. The full investigation of the case in the Court of Appeal and in the House of Lords had shown that no responsibility for that prolonged detention could be laid on Dr. Bond or Dr. Adam. The laws relating to lunacy provided for the protection of the public against the risk of unjustified detention, by providing precautions, and if these precautions were insufficient (but he did not say that they were), and if the lunacy laws needed alteration, that was no reason for visiting with vindictive penalties persons who had acted in good faith, and who were not responsible for any defect in the law.

Lord Dunedin and Lord Buckmaster delivered judgments to the same effect, and Lord Atkinson and Lord Sumner concurred.

As a result, Dr. Adam is to be congratulated upon the conclusion of litigation, prolonged most unfortunately for him by the conclusions arrived at in the trial before Mr. Justice Lush, and the case against Dr. Bond remains *sub judice:*

THE LAW RELATING TO CORONERS.

THE Lord Chancellor has made a welcome announcement with reference to coroners' inquests in answer to a question by Lord Darling in the House of Lords. He said that the Government proposes to introduce a Bill dealing with them in general as well as with the question raised by Lord Darling, which related to the inconvenience arising out of inquests held simultaneously with proceedings before magistrates for murder or manslaughter. This is a matter which principally concerns those charged with the administration of justice, but it would also be an advantage to busy medical men who have to give evidence not to be obliged to repeat it more often than is necessary. The desirability of substituting a new Act of Parliament for the Coroners Act of 1887 has been pointed out repeatedly in our columns. Many improvements in the law have been suggested since the Act referred to came into force. Presumably, for example, power will be given to a coroner to order a post-mortem examination in doubtful cases before deciding that an inquest should be held, and probably the system of giving certificates of the cause of death by medical men who have not seen the body will be altered. It must not be forgotten that not only was the present statute passed nearly 40 years ago, but that a departmental committee took evidence on the subject and made recommendations in 1909–10. That committee, among other matters, inquired closely into the question of inquests following deaths under anæsthetics, when the late Sir Frederic Hewitt suggested the desirability of appointing in all such cases an expert as assessor to the coroner in order that the cause of death might be determined with precision. Some special consideration of the questions arising after deaths under anæsthetics may be expected. The Chancellor, we are glad to observe, said that the Bill is now ready, and that the Government hope to introduce it before long.

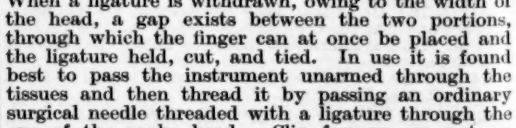
BECKETT-OVERY *v.* VAUGHAN: A SETTLEMENT.

IN this case, the hearing of which in the Chancery Division extended over five days in last March, Dr. H. Beckett-Overy sought to have his partnership with Dr. J. C. F. D. Vaughan dissolved upon grounds which included allegations as to the equipment of Dr. Vaughan for the practice in which they were engaged, and as to his conduct with regard to it, the partners having ceased to be on speaking terms. After much evidence on both sides had been given Mr. Justice Eve held that the charges put forward by the plaintiff in support of his claim for a dissolution, and denied by the defendant, had not been proved by the former; he dismissed the action, adding that nothing had transpired or was involved in his judgment that ought to affect the mind of any patient of either of the parties. Against this judgment an appeal was entered by Dr. Beckett-Overy, but when it came on for hearing Mr. Clauson, K.C., counsel on behalf of the appellant, announced that a settlement had been arrived at and asked that the appeal should be dismissed on the terms agreed. These were stated by Sir Malcolm Macnaghten, K.C., who said that his client had contested the action because he felt that there were no grounds upon which dissolution could be claimed against him. He was, however, satisfied that a dissolution should take place, and the terms arrived at accordingly were that the partnership should stand dissolved as from that date with an acknowledgment that there were no grounds on which it could be dissolved otherwise than by agreement; that Dr. Beckett-Overy should give an indemnity against the costs of the action and of the appeal; that he should repay to Dr. Vaughan the sum of £2000 paid by him for his share in the partnership, and should also pay to Dr. Vaughan £500 per annum for the next three years. The Master of the Rolls signified the assent of the Court to the settlement as stated and the appeal was dismissed accordingly. The parties are to be congratulated upon having arrived at a conclusion which saved them both from all further ventilation of their differences in public, and the successful defendant upon a result which has vindicated the position of resistance which he took up.

New Inventions.

A "SNAKE-HEADED" NEEDLE.

THIS needle is intended for the more rapid ligation of masses of omentum and mesentery in gastrectomy. It has a wide flat head, blunt-pointed, with a large eye bored sideways through the widest part of the head, and wide enough to allow any ordinary surgical needle threaded with a strong ligature to be passed through. The needle is 9 inches in length. The head is 7/16ths of an inch wide, and the shank is slightly curved on the flat 1 inch from the head. Its use is to



obviate the loss of time caused by wet ligatures clinging together when drawn through soft tissue. When a ligature is withdrawn, owing to the width of the head, a gap exists between the two portions, through which the finger can at once be placed and the ligature held, cut, and tied. In use it is found best to pass the instrument unarmed through the tissues and then thread it by passing an ordinary surgical needle threaded with a ligature through the eye of the snake head. Clip forceps are put on to each end of the ligature and the surgical needle removed. The "snake head" is now drawn back, a finger slipped through the loop of ligature withdrawn, another clip forceps is applied opposite to the finger, the loop is cut near the snake head, and each portion is tied off without any risk of fouling or crossing or time lost in picking the strings asunder. The instrument has been in use in the Meath Hospital, Dublin, for many months and has been employed almost entirely in gastrectomy, although occasionally used in colectomy.

Messrs. Down Bros., 21, St. Thomas's-street, London, S.E., are the makers.

R. LANE JOYNT, M.D., B.Ch. Dub., F.R.C.S. Irel.
Dublin T. J. D. LANE, M.D., B.Ch. Dub.

THE LANCET.

LONDON: SATURDAY, MAY 30, 1925.

RECIPROCITY OF MEDICAL PRACTICE.

THE 121st session of the General Medical Council opened on Tuesday last with the delivery of Sir DONALD MACALISTER'S presidential address. This will be found substantially in another column, and brief though it is, it presents for our consideration several quite important questions, to one of which attention should be called—namely, international reciprocity in medical practice. It has always been the ideal and policy of the General Medical Council to promote reciprocity between this country, our Overseas Dominions, and foreign nations, on the simple assumptions that the good doctor deserves recognition as such in whatever country he may elect to carry on his calling, and that geographical delimitations are at variance with the whole spirit and conduct of medical practice. But although these assumptions are true, and although it is true also that the human make-up is, to speak generally, all the world over similar, and subject to attacks all the world over which have to be repelled by analogous methods or prevented by comparable measures, still a complete free trade in medicine has not been possible, if only because the standards of the different countries cannot lead to similar methods of training. The younger nations, whether speaking literally or in regard to scientific development, have not had the opportunity of educating their followers of medicine in the same way as those nations whose development has reached higher planes; any of these nations may produce a discoverer or a pioneer, but reciprocity connotes a general or average standard among all those who practise, and cannot be established as an international routine in recognition of distinguished individual cases. There are great countries, notably the United States of America and our own Dominion of Canada, where even within their own borders the varying standards have rendered complete reciprocity difficult for the time, but scientific progress in these countries has during the last half century been so rapid that this situation must soon cease to exist. There are again countries where certain votaries of medicine have received their traditions and instructions upon principles that do not accord with what Western medicine holds to be essential, and this situation renders impossible any compact of an international character by which the practitioner along peculiarly racial lines could be bound by the general tenets. In India, however, movements have recently taken place which will tend to make it easier for the graduates of all their universities to register their degrees in the appropriate list, and Sir DONALD MACALISTER was able to tell the Council of other important directions for the establishment of medical reciprocity. Our relations in this direction with Italy were interrupted recently and to the great regret of medicine, for the generous understanding between Great Britain and Italy was of long standing. An intimation has, however, been received within this week to the effect that British and Italian medical men desiring to practise in each other's countries will again obtain the necessary facilities. In Ireland the Free State legislature has made the position for medical practitioners in Southern Ireland, for a period of one year more, at any rate, comparable to that which they would enjoy in England, as regulated by the Medical Acts. Jersey and Guernsey have brought their law into harmony with ours by a new Medical Act.

So far so good. What remains to be accomplished before anything like such international coöperation of medical effort as medical science desires and deserves can be reached is very great, but so is the growing spirit to obtain it. The part being played by medicine in the activities of the League of Nations is so practical and so beneficent that the value of international understanding upon medical questions, and of combined effort to take remedial or preventive measures, as inspired by collective wisdom, grows daily apparent. The direct route to such understanding is reciprocity of practice.

NEW ANÆSTHETICS.

THE ideal anæsthetic is still to seek. It is good, therefore, to know that there are scientific men eagerly seeking it, and the account of work in connexion with anæsthetic agents not yet widely used, which we publish on page 1126, will be of interest to all our readers. The Combined Committee set up by the Medical Research Council and the Section of Anæsthetics of the Royal Society of Medicine has sat now for a year or so, and we have reason to hope that besides the valuable work on comparatively unknown agents to which we refer above, its labours will prove fruitful also as regards the standardisation and purity of some of the more familiar anæsthetic drugs. For it is not injudicious to suspect that even to-day we may not be getting from the anæsthetics with which we are already familiar the best result that they can possibly achieve. It may be that future improvement will lie not in the substitution of other agents for nitrous oxide and for ether, but in the discovery of methods and measures by which the use of these two faithful servants may be purged of the defects which alone rob them of perfection. These are, of course, comparative impotence in the case of the former and after-effects in the case of the latter. If ether were never followed by bronchitis or sickness, and "gas" alone could always produce relaxation, we should hardly need another anæsthetic. The anæsthetics with which Dr. SHIPWAY and Prof. PEMBREY deal in their report suffer from the primary disadvantage of being gaseous. Anæsthetics which are gases at ordinary temperature and pressure are, of course, as is familiar in the case of nitrous oxide, inconvenient as regards portability and general handling. It is only the paramount excellence of "gas" in certain directions that compensates for its inconvenience and keeps it in many instances the anæsthetic of election. It does not appear that either acetylene or ethylene provides advantages over nitrous oxide that will compensate for their possession of the same defect of inconvenience. Both these gases suffer the additional disadvantages of smell and of easy inflammability. It is true that in this latter respect they are not much worse than ether, for ether, too, cannot be used near an open flame or in contact with the actual cautery. But acetylene and ethylene are rather more easily explosive than ether apart from ignition by flame, and one or two accidents that have occurred in practice show the need for extreme care when these gases are employed in con-

junction with nitrous oxide. The practical question of cost is likely also to militate against wide popularity for ethylene. In many respects, however, this gas appears to a highly satisfactory anæsthetic, and it is to be hoped that the efforts of the Committee will result in bringing ethylene within easy reach of the anæsthetist. At present, except in small quantities, it can hardly be obtained unless from America. The large percentages of oxygen which it is found possible and desirable to use in conjunction with ethylene show its potency as an anæsthetic agent. It is interesting in this connexion to recall the importance attributed to small quantities of ethylene as an impurity in ether by those, as we believe mistaken, authorities who declare pure ether to be devoid of anæsthetic power. Propylene has so far been submitted to so little trial that no pronouncement can yet be made on its merits or defects. Nevertheless, it is obviously worthy of further research, and to that we have no doubt it will be submitted.

ATROPHIC RHINITIS.

THE causation of atrophic rhinitis, or true ozæna, still remains a matter of uncertainty and speculation. In this country the view most widely accepted is that it is the mechanical result of past inflammation which has resulted in atrophy of the mucosa, destruction of the ciliated epithelium, and degeneration of the mucous glands; the secretion consequently tends to stagnate and to dry into crusts which, by harbouring putrefactive organisms, give rise to the characteristic offensive odour. The disease is, therefore, incurable, though the worst symptoms can be ameliorated by keeping the nares free from crusts, and this view of the condition is corroborated by the ordinary results of treatment. On this theory the multitude of micro-organisms found in the nose are not the cause of the disease, but play a secondary rôle by setting up putrefaction and causing the stench. Of the numerous organisms which have been isolated from cases of ozæna several have been claimed as the specific cause, amongst others the *Bacillus mucosus* described by LÖWENBERG in 1894, the Klebs-Löffler and the pseudo-diphtheria bacillus, and Friedländer's bacillus, but none of these have been shown to be the true causative organism. In 1899 PEREZ isolated a small polymorphic cocco-bacillus from a case of ozæna, called by him the *Cocco-bacillus fœtidus ozænæ*, which had the peculiarity that its cultures in broth constantly gave an intense sweetish odour like that of ozæna; furthermore, intravenous injection of a pure culture in puppies caused suppurative inflammation of the nasal mucosa with progressive disappearance of the bony structure, especially of the so-called anterior turbinal, while the bacillus could always be cultivated from the nasal secretion of the inoculated animals. PEREZ also found his organism in the nares of healthy dogs, and gave his opinion that atrophic rhinitis is an infectious disease communicable from man to man, and also that dogs are capable of infecting human beings.

The investigations of PEREZ have not, however, been very generally accepted, and many workers on these lines have failed to corroborate his experiments. Dr. GUSTAV HOFER took up the investigation in 1913; as he did not succeed in obtaining a pure culture of PEREZ'S cocco-bacillus by cultural methods, he inoculated the mixed culture intravenously into a dog and obtained a pure culture of the organism from the resulting nasal discharge. With this he corroborated PEREZ'S results, and further found that injection of a sterile filtrate obtained from the cultures produced the characteristic intranasal reactions. Since that time he has been a consistent advocate of the theory that the cocco-bacillus of PEREZ is the causative agent of atrophic rhinitis, and he has recently again published a full account of his views.[1] He finds further that the serum of 60 out of 100 typical ozæna patients gave an agglutination reaction with PEREZ'S bacillus, although in some the organism could not be cultivated from the nose, and that no such reaction could be obtained in 40 patients without ozæna. For the last ten years he has treated ozæna by inoculations with PEREZ'S bacillus; he naturally premises that a cure cannot be expected in advanced cases with marked degeneration of the mucosa, and does not inoculate those with advanced atrophy. Of the remaining cases he claims 8 to 10 per cent. of complete cures, 15 to 20 per cent. are refractory, and the rest are greatly improved; 15 to 45 weekly injections are required. He does not give details of the doses, nor of the age of the patients treated. Dr. HOFER writes with conviction, and a perusal of his article suggests that the subject might with advantage be investigated again in this country from his point of view.

THE AMERICAN MEDICAL VISIT.

A VISIT to Europe on the part of 300 medical men from different parts of America will be the occasion of important scientific and social gatherings in London next week. The house of the Medical Society of London (11, Chandos-street, Cavendish-square, London, W. 1) has been placed at the disposal of the committee responsible for the arrangements, as a bureau and headquarters, and an attractive programme has been arranged. The Duke of York will welcome the guests at the Wigmore Hall, Wigmore-street, on June 2nd at 9.30 A.M., and short lectures will follow by Sir Humphry Rolleston, Sir W. Arbuthnot Lane, Sir Thomas Horder, and Dr. A. F. Hurst, the first-named acting as chairman of the session. On the morning of June 3rd, under the chairmanship of Sir John Bland-Sutton, Prof. Hugh MacLean, Mr. A. J. Walton, Colonel L. W. Harrison, Mr. W. E. Miles, Mr. T. P. Dunhill, and Dr. Strickland Goodall will give short lectures; on June 4th Dr. Gordon Holmes, Sir Walter Fletcher, Mr. James Sherren, Sir StClair Thomson, and Dr. H. C. Cameron will speak on subjects on which they are recognised as experts, while Lord Dawson of Penn will give the final lecture entitled the Speed of Life and Disease. Each lecture is timed to last for half an hour only. In the afternoons visits will be paid by small parties of 20 or 30 to various general and special hospitals where detailed programmes have been planned. The social arrangements include an evening party at the Royal Society of Medicine on June 3rd and a reception on June 5th at the Royal College of Surgeons, where, at 4 P.M., Sir John Bland-Sutton will give a short lecture on the Psychology of Animals Swallowed Alive. Various other functions are being held at the invitation of institutions and of private individuals, while the banquet at the Guildhall on June 5th, at which Dr. C. H. Mayo will preside, is likely to be a brilliant affair.

[1] Seuchenbekämpfung, 1925, No. 3–4, p. 106.

Annotations.

"Ne quid nimis."

THE PENSIONABLE AGE.

IN his speech in the House of Commons last week on the second reading of the Contributory Pensions Bill, Dr. F. E. Fremantle raised the question of the right pensionable age from the public health standpoint. To pension rigidly at 65 seems to him to be wasting money; not only so, but it means permanently throwing out of work at the age of 65 people who would be the better for working longer. The steady improvement of recent years in public health has not merely extended age as such, it has extended working age, and Dr. Fremantle sees a future in which people will live to 90, if not to 100 and 150 years of age. Whatever may be the accuracy of this prevision, it seems to be accepted by medical statisticians that, should the birth-rate continue to diminish and ultimately to approach the death-rate, there will be a much larger proportion of elderly people in the country in proportion to the working population. Many years ago Prof. Raymond Pearl remarked that a stationary population, one in which the birth-rate and death-rate balance, is necessarily a population with a relative excess of persons in the higher age-groups, and it hardly needs a great statistician to make the point. This state of affairs is likely to have important social consequences, inasmuch as we do not know if the upkeep of these elderly non-workers can be properly maintained out of the fruits of the workers' toil, whether immediately or by way of contributory pension. Dr. Fremantle would not be guided in his pensioning by the "crude mechanical age" of 65, or any other age, but would institute a test of disability to be decided by a medical board diluted with such other elements as may be required to constitute a professional technical board.

The practice of fixing a definite age at which pensions should commence appears to be general in Europe. Denmark, in a scheme of outdoor relief framed in 1891, put the pensionable age at 60 years. In Belgium and France it is 65, and in Italy a system of voluntary contributory insurance subsidised by the State provides annuities at the age of 60, when dues have been paid for the preceding 25 years. America is apparently the only country which has not adopted some form of old-age relief and has not fixed a pensionable age. The question has been studied in the light of the influence of prolonged physical activity upon the health of the manual worker. Pearl in his "Biology of Death" went so far as to suggest that the duration of life of an animal stands in inverse relation to the total amount of its metabolic activity, or, put in other words, to the work (in the sense of theoretical mechanics) that it, as a machine, does during its life. E. A. Ross, in a study of treadmill and carrying coolies, gave a very practical example of the shortening of life by exertion, and the unfortunate relationship between hard work and duration of life, shown in such extreme cases, holds in lesser degree after middle age for nearly every walk of life. Before the age of 40, according to E. L. Collis and M. Greenwood,[1] it seems to make little difference in the rate of mortality whether the occupation involves light or heavy physical labour. After 45 years of age a man shortens his life by definite amounts in proportion as he performs physically heavy labour. In the case, therefore, of lives spent in severe muscular exercise the limitation of work by a strict age-limit has a sound statistical basis. Only in occupations of a less arduous character would the postponement of the pensionable age fairly come up for consideration.

[1] The Health of the Industrial Worker. London. 1921.

TINTED GLASSES.

IT is to be feared that tinted glasses or Crookes glasses are too often prescribed without the prescriber having any very clear idea of the exact effects which the quality of glass is calculated to have on the eyes of the patient. For this reason we welcome the publication of Sir Arnold Lawson's presidential address delivered before the Section of Ophthalmology of the Royal Society of Medicine,[1] and which we reported at the time.[2] In the first place, there is a great deal of popular misconception on the subject of ultra-violet rays. The visible spectrum extends roughly from waves of light of 700 μμ wave-length at the red end to 400 μμ wave-length at the violet end, or in some people to 380 μμ. When we come to rays of shorter wave-length, some of them are capable of chemical action which, if it were possible for them to penetrate to the retina of the eye, might be harmful to it. In the normal eye, however, it is impossible for any ultra-violet rays except those between 400 μμ and 350 μμ to penetrate so far. The cornea absorbs all waves of shorter wave-length than about 290 μμ and the crystalline lens all up to 350 μμ. Moreover, ordinary untinted glass itself is impervious to ultra-violet rays, so that in the case of wearers of spectacles they are doubly protected, and although ordinary sunlight contains ultra-violet rays as short as about 350 μμ it stands to reason that these cannot be harmful to the normal eye. It is erroneous, too, to suppose that electric incandescent lamps are stronger in ultra-violet radiation than ordinary sunlight, so that from this point of view we may say that the danger of ultra-violet radiation in the eye in ordinary life is nil. With regard to the luminous and infra-red rays, on the other hand, the case is different. The eye does not appear to possess any sufficient natural protection against an excess of these, beyond what is present in the sunlight that we ordinarily encounter, and when to excess of sunlight is added glare—the reflection from a snowfield, for instance, which, it is estimated, may be as much as 70 per cent. of the incident light, striking the eye in an unaccustomed and therefore distressing manner—the effect is such that artificial protection is called for, even for normal eyes.

What sort of protecting glasses should be prescribed? There is an interesting chart of absorption curves of various sorts of protecting glass published with Sir Arnold Lawson's paper. From this it appears that the glass which gives by far the most efficient protection against infra-red rays is that known as peacock blue, and in the opinion of Sir Arnold Lawson this is the best glass to prescribe in all cases of inflammatory disease of the retina or choroid. The colour effect of these glasses, however, is so inconvenient to the patient with healthy eyes that their use is obviously restricted. There remains the choice between different sorts of tinted glass—London smoked, amber, Fieuzal, and Crookes glass, all of various shades. From the medical point of view there is not much to choose, but Crookes A or A2 glass has this superiority, that it affords a general shade without materially disfiguring the appearance or altering colour values. They cut off all the ultra-violet rays of a shorter wave-length than 350 μμ and their use would seem to be indicated after cataract extraction, when the protection to the retina afforded by the lens no longer exists. For normal eyes, after illness or in states of lowered health, where photophobia is a symptom, Fieuzal or Crookes smoked (B or B2) glass is sometimes appreciated by the patient, but to wear tinted glasses in normal conditions is a habit not to be encouraged. In cases of neurasthenia many patients claim to have derived great benefit from the wearing of Crookes untinted glasses, but how far the element of suggestion comes

[1] British Journal of Ophthalmology, March, 1925, and Proceedings of the Royal Society of Medicine, Section of Ophthalmology, April, 1925.

[2] THE LANCET, 1924, ii., 801.

in may be considered doubtful. To avert snow-blindness in the Alps London smoked, amber, or green glasses seem to be the favourite. It is said that in Shackleton's South Pole expedition even the horses had amber-tinted glasses constructed for them. A point which is apt to be overlooked, and on which Sir Arnold Lawson laid stress, is that the amount of protection afforded by any glass depends not only on its tint and composition, but also upon its thickness. When concave glasses are worn the effect must be correspondingly smaller than with a plane glass.

THE BILHARZ CENTENARY.

IN the year 1825 Theodor Bilharz was born of well-educated parents, at Sigmaringen, where his brother, A. Bilharz, a distinguished philosopher, still lives at the age of 85. As a boy Theodor had a great love of nature, and this taste was encouraged by his studies under the naturalist, Siebold. Becoming a doctor, he gave up his post of prosector at Freiburg, in Baden, when Griesinger, who had been appointed physician to the Viceroy of Egypt, invited him to come with him as his assistant in 1850. Siebold had taught him to take interest in helminthology, and in 1851 Bilharz made his first report on *Distomum hæmatobium*, the curious trematode whose males carried the females about in their gynæcophoric canals. In 1852 he declared it to be the cause of cystitis, vesical polypi, and probably of stone. In 1856 Meckel expressed the opinion that the new trematode did not belong to the genus *Distomum*, and suggested the name *Billharzia* (the mis-spelling of the author's name being no doubt unintentional); Weinland it was who, in 1858, called it *Schistosomum*. In 1852, Bilharz along with Siebold drew attention to the importance of *Ankylostoma duodenale* in the causation of anæmia, and later made researches on guinea-worm, but thereafter he devoted himself to investigations of the electrical organs of Nile fishes, and to ethnological examinations of Egyptian skulls. He contracted typhoid at Massowah, and died in Cairo in 1862. His biographer, Dr. E. Senn, describes[1] Bilharz as devoted to his friends, and unselfishly assisting all who needed his help. His importance as a pioneer in the investigation of tropical medicine is known to all.

VARIATION OF BACTERIA.

IT is now a familiar fact that from ordinary "pure" cultures of bacteria a number of strains may be separated which differ from one another in their fermentative capacities, their mode of growth, their virulence, their serological reactions, and in their other properties which are used as identifiable characteristics. The phenomena are of great interest. In the first place, the unique rapidity of multiplication of bacteria makes them material of exceptional importance in the general biological study of variation and evolution; and in the second place a proper knowledge of their possibilities in these directions lies at the bottom of an understanding of many of the larger problems of epidemiology. In two papers in the last number of the *Journal of Experimental Medicine* (vol. xli., pp. 587 and 649) Dr. H. A. Reimann of the Rockefeller Institute and Dr. H. L. Amoss of Baltimore describe observations made with type I. pneumococci. Dr. Amoss worked with a culture which had been stabilised by being passed through 189 mice; individual colonies from plate cultures showed no significant variation in virulence, nor did seven strains isolated by culture of single cocci. But if this culture was grown under somewhat unfavourable conditions—in immune serum, in dilute bile, or in somewhat acid broth—avirulent strains, mixed with normally virulent organisms, were easily obtained which differed in mode of growth and reaction to bile-solubility as well as in their action on mice. The difficulty in the interpretation of such observations has generally been that it cannot be known whether the new form was present in minimal numbers in the original culture and has become manifest only in an environment which is relatively favourable to it or whether something really fresh has arisen. Dr. Amoss can, however, give at least a partial answer to this fundamental question, for using cultures derived from the original population by the isolation of single diplococci he shows that by growth in diluted antiserum avirulent strains may be obtained which are apparently identical with those got from the ordinary culture with which he started. It seems clear therefore in this case that the avirulent strain was a new mutation and not merely an unmasked component of an originally mixed population. His attempts to reproduce a virulent strain again were unsuccessful; continued growth on favourable media and passage through mice left the avirulent strain as it was. The results throw no great light on the troublesome hygienic question whether any practical importance should be attached to, e.g., avirulent diphtheria bacilli, though as far as they go they are compatible with the sanitary experience that such brands of organisms do not matter very much. Dr. Reimann's observations gave essentially the same results; single virulent diplococci can originate avirulent strains which have never been found to revert and which to a large extent have lost their type specificity; their part in the world's economy remains to be discovered.

[1] Archiv für Schiffs- u. Tropen-Hygiene, April, 1925.

DRAINAGE OF THE GALL-BLADDER.

IT still appears to be an unsettled question among surgeons as to whether the gall-bladder should be removed or left in situ and drained when it is found to be inflamed at operation. Dr. Thomas S. Cullen, of the Johns Hopkins Hospital, is in the almost unique position of being able to approach the subject as a patient, for he had his gall-bladder first drained and then removed some years later, and as a surgeon who has drained the gall-bladder in nearly 300 cases. An account of the end-results of these operations by Dr. H. L. Darner forms one of the most interesting papers in the third volume of reprints recently published by Dr. Cullen.[1] Of the 290 patients who have been thus treated, in 17 the gall-bladder was gangrenous, in 104 acutely inflamed, and in 144 relatively quiescent at the time of operation, while in the remaining 25 the gall-bladder was found to be diseased when the abdomen had been opened for some other reason. When the gall-bladder was very large a portion of it was removed, but otherwise Dr. Cullen contented himself with introducing a drainage-tube accurately held in position by sutures passing through the gall-bladder wall and the rubber tube, and by additional purse-string sutures. Two "cigarette" drains were then placed just below the gall-bladder, one of which drains was removed on the first and the other on the third day, while the main drainage-tube usually came away between the tenth and the thirteenth day after operation. The abdominal wound was usually found to be healed at the end of the third or fourth week. The immediate death-rate was 10 per cent., but this was unduly high on account of the inclusion of some 17 cases in which the pre-operative condition of the patients made the result almost hopeless from the start. In following up the cases which recovered, Dr. Darner was able to obtain information about all but 14. Of the remainder, 19 were unimproved, 26 were improved but had some symptoms, while 202 had no gall-bladder symptoms at all after operation and were either alive and well or, as in the case of 34 patients, death had resulted from some other cause. Since the total number of cases was spread out over a period of 25 years, this number of deaths from other causes cannot be regarded as excessive. The paper contains a summary of nearly all the cases on which

[1] Reprinted from Surgery, Gynecology and Obstetrics, November, 1923.

these statistics are based, and while the facts are thus fully presented, Dr. Darner has refrained from drawing any deductions other than a brief note in which he summarises the prevailing conclusions. Dr. Cullen himself admits that the question is by no means settled and he pleads for further reports as to the end-results in gall-bladder cases. A follow-up investigation of a large number of cases treated by cholecystectomy would form an interesting comparison with this exceedingly instructive paper.

LIVER EXTRACT IN HIGH BLOOD PRESSURE.

AN announcement was made at the recent annual meeting of the Ontario Medical Society to the effect that injections of a liver extract will reduce the high blood pressure of arterial disease. As yet no complete account of this work has appeared in the scientific literature, but it will be interesting to review the established scientific researches tending to support such an hypothesis. In the first place, it is a matter of common knowledge that extracts of tissues are practically always depressor in action. The effect, however, only lasts for a short time. The idea of associating the liver with chronic hypertension is by no means original. A group of investigators, about 15 years ago, paid special attention to the pharmacological properties of amines, and to their destruction in the liver. It was found that many of the amines derived from amino-acids were strongly pressor in action. Thus isobutylamine, isoamylamine and *p*-hydroxy-phenyl-ethylamine are capable of raising the blood pressure on injection (Dale and Dixon,[1] Barger and Dale[2]). It had previously been shown that these bodies could be produced from amino-acids by the action of the intestinal bacteria. The pressor effects of such amines, together with their possible production in the intestines, suggested a new cause for chronic hypertension. Thus Harvey[3] produced chronic renal and vascular sclerosis by feeding rabbits with *p*-hydroxy-phenyl-ethylamine. Clark[4] found that the oral administration of this body raised the blood pressure in man. In 1910 Ewins and Laidlaw[5] demonstrated that these amines, when perfused through a surviving liver, were detoxicated, and were converted into the corresponding oxy fatty acid derivative. Oehme,[6] in 1913, indirectly confirmed this work by proving that much larger doses of these bodies were required to kill an animal when injected into the portal vein than when the amine was administered by injection into the systemic circulation. It would appear, therefore, that the liver can detoxicate pressor bases, and the results of the further investigation promised by the University of Toronto will be awaited with interest.

WEIGHT-LIFTING.

CONTROL of weight-lifting in industry has long been a vexed question for enforcement under existing powers. Instances have again and again been quoted by inspectors of juveniles struggling with burdens weighing more than themselves; but a standard of what is reasonable, or rather not injurious, to lift has been hard to determine and harder still to present in evidence during prosecutions. The Home Office have, however, just issued draft regulations to apply to lifting heavy weights in the woollen and worsted textile industries. This draft is notable not merely as an effort to solve a difficult problem, but on account of the part played by the industries concerned. The standards adopted are those recommended to the Home Office after investigations carried out by the National Wool (and Allied) Textile Industrial Council; hence the proposed regulations represent an instance of an industry coming forward and desiring to have its practice controlled by statute. This procedure is in itself a matter of some moment. The scale of weights is here shown together with the approximate weights of those to whom it will apply:—

Person.	Maximum weight permissible to lift if body be—		Approx. mean weight of person.
	Compact or rigid.	Not reasonably compact or rigid.	
	lb.	lb.	lb.
Male..	150	120	150
Female aged 18 and over	65	50	120
Male aged over 16 and under 18	65	50	125
Female aged under 18 ..	50	40	90
Male aged under 16 ..	50	40	90

If weight be any criterion of power the adult male is worst off; moreover, as he grows older he is more prone to develop hernia from weight-lifting. For the rest about half the body-weight seems to be the standard chosen if the weight to be lifted be rigid, but here the juveniles are not quite so well off, since they may lift over half their weight. Probably what is practicable, without undue interference with custom, has influenced the weights chosen, which of course represent the maximum permissible to lift and not what must be lifted. This scale, when accepted, will have administrative value, and, if it finally hastens the introduction of mechanical weight-lifting appliances, it will do good.

IN MEMORY OF SAUGMAN.

ON March 1st, 1925, Vejlefjord Sanatorium celebrated its twenty-fifth anniversary, and the occasion was marked by the publication of a collection of papers,[1] written by several of Prof. Saugman's former assistants. Half a score of these papers are of a scientific character, and they contribute not a little to the modern literature of tuberculosis. But the paper which will be read with the greatest interest by those who had the privilege of knowing Saugman is the "Appreciation," written by Dr. J. Ostenfeld, who was Saugman's chief assistant in the period 1902–1907. Here is one of the intimate touches with which Dr. Ostenfeld introduces us to the inner life at Vejlefjord:

> "It was the custom at Vejlefjord Sanatorium for the physicians to circulate different magazines among themselves, and it was the rule that the one who first got a magazine was to underline anything of special interest. It fell to my lot to get the particular number of the *Deutsche Medizinische Wochenschrift* with Forlanini's article in it, and I clearly remember how one evening I handed it over to Saugman. The next day when Saugman, as usual, joined the morning round at 7 o'clock he had been greatly impressed, and declared that now the question raised by Forlanini approached its solution."

From this date (1906) onwards Saugman contributed more than anybody else to the evolution of lung collapse treatment, and at the time of his death in February last as many as 616 had been selected for this treatment at Vejlefjord. Saugman soon found that the benefits of thoracoplastic operations were jeopardised when they were undertaken away from the hygienic influences of a sanatorium, and ultimately he decided to master the technique of chest surgery so that he could give his patients the combined benefit of surgical and sanatorium treatment. As a student he had had a penchant for surgery, but it was not till after he had turned 50 that he took up surgery seriously. But he became a very skilled surgeon, and

[1] Dale, H. H., and Dixon, W. E.: Jour. Physiol., 1909, xxxix., 25.
[2] Barger, G., and Dale, H. H.: Jour. Physiol., 1910, xli., 19.
[3] Harvey, W. H.: Jour. Path., 1911, xvi., 95.
[4] Clark, A.: Biochem. Jour., 1910, v., 236.
[5] Ewins, A. J., and Laidlaw, P. P.: Jour. Physiol., 1910, xli., 78.
[6] Oehme, C.: Arch. Exp. Path. u. Pharm., 1913, lxxii., 76.

[1] Chr. Saugman, 1864–1923, Vejlefjord Sanatorium, 1900–1925. London: John Bale, Sons and Danielsson. Pp. 120. 7s. 6d.

personally operated on 91 patients. It would, perhaps, be idle to speculate what the fate of many of these patients would have been had it been necessary for them to leave the sanatorium, travel many miles, and submit to the discomforts of a thoracoplastic operation performed by a stranger in a surgical nursing home in a large town. Dr. Ostenfeld's sketch of Saugman's character portrays him as a man of strong contrasts. "His self-reliability and his humility constantly changed like storm and calm, yet so that his humility (he was always a professing Christian) was more and more apparent the older he became." He was an optimist and, as far as his optimism with regard to the character of others was concerned, he did not show great psychological insight. But his clinical optimism was unbiased and discriminating, and "his glance was penetrating in clinical matters." His commentator adds that: "His brilliant intellect was accompanied by an ingenuousness which somtimes expressed itself in quite a childlike way." But is there anyone of brilliant intellect who is not in some respects childlike?

MILK FEVER.

MILK fever or "post-partum paresis" in cows is one of those conditions which illustrate the point that the discovery of a successful empirical treatment may mislead or, worse still, kill real scientific interest in the ætiology of the disease. In 1897 Schmidt discovered that intra-mammary injection of potassium iodide was effective in curing milk fever. On the new treatment the mortality fell from about 50 per cent. to 20 per cent. and even less. Further investigation showed that the injection of many different fluids produced good results, and now mere intra-mammary insufflation is employed. There have been many hypotheses to explain this striking effect, but most of them have been very crude. In the *Veterinary Record* of March 21st, 1925, however, Prof. H. Dryerre and Prof. J. R. Greig, of Edinburgh, put forward an interesting theory. In the first place they combat Pugh's suggestion that the condition is essentially a ketosis which predisposes to a botulismus infection. They, on the other hand, hold that the disease is due to a parathyroid deficiency. This is probably so slight as to manifest itself only during the strain of pregnancy and parturition. Toxins such as guanidin then accumulate, and further, calcium metabolism is upset. At this point the animal is in a state of very unstable equilibrium, and a small amount of adrenalin liberated into the blood as a result of mild excitement is sufficient to precipitate a form of tetanic convulsions. For it has been shown by Guleke that a small dose of adrenalin will hasten the onset of tetany in an animal which has had its parathyroids removed. If, however, a large amount of adrenalin is liberated, the oxidation of the toxins is accelerated, the calcium loss is checked, and the blood pressure is raised. This, the authors suggest, is the reflex effect produced by the powerful afferent stimuli induced by intra-mammary insufflation. In this connexion it is interesting to note that cows which have an easy labour are generally those which may later develop milk fever, while those which experience a difficult labour seem to be relatively protected. In the latter case a large dose of adrenalin is presumably liberated into the blood-stream, while in the former only a small sensitising dose is produced. In view of this explanation, however, it seems strange that, while intra-mammary insufflation is sometimes inadequate to effect a cure, it is not more often just sufficient to cause a severe exacerbation. If, as the authors point out, any sympatheticotonia which exists in the condition is only relative and the supply of adrenalin is always low, then the injection of adrenalin suggests itself. We are assured that in the one case recorded in which this was done the result was encouraging. Whatever the ultimate fate of their theory these workers have at least succeeded in bringing the problem into relation with modern physiological conceptions. It is possible, too, that by this line of attack new light may be thrown not only on milk fever, but on eclampsia and similar conditions.

THE next social evening of the Royal Society of Medicine will be held at the Society's House, 1, Wimpole-street, Cavendish-square, W. 1, on Monday, June 15th, to commemorate the centenary of the birth of Charcot. At 8.30 P.M. the guests will be received by Sir StClair Thomson, the President, and at 9.30 P.M. Dr. Farquhar Buzzard, President of the Section of Neurology, will give an address on Charcot and the Centenary Celebration of his Birth.

THE BATEMAN APPEAL.

ON another page will be found the text of the reserved judgment in which the Court of Criminal Appeal gives its reasons for quashing the conviction of Dr. Percy Bateman. As already explained in THE LANCET, it has been felt that material assistance ought to be offered to Dr. Bateman to meet the legal expenses of his successful appeal and to make good the deficiency in his professional income. Accordingly the Bateman Fund has been opened and list of contributions have appeared in recent issues. We have received additional contributions as follows:—

	£	s.	d.
Already received and acknowledged ..	455	2	0
Sir James Barr	1	1	0
Dr. A. Hill Joseph	1	1	0
"Anon"	0	10	0
Dr. T. A. Hepworth	0	10	0
	458	4	0

Remittances should be forwarded to the Manager of THE LANCET, 423, Strand, W.C. 2, and made payable to the "Bateman Fund Account."

The Services.

ROYAL NAVAL VOLUNTEER RESERVE.

Temp. Surg. W. P. Elford, late R.N., to be Surg. Lt.
Proby. Surg. Sub-Lt. L. P. Spero to be Surg. Sub-Lt.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. R. N. Hunt is placed on the half-pay list on account of ill-health.

Maj. G. P. A. Bracken retires on ret. pay.

Capt. F. R. S. Shaw is secd. for serv. under the Colonial Office.

Temp. Capt. A. A. Wilson relinquishes his commn. on account of ill-health and retains the rank of Capt.

REGULAR ARMY RESERVE OF OFFICERS.

Col. H. J. M. Buist, late R.A.M.C., having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY.

Maj. G. G. Marshall (late R.A.M.C., S.R.) to be Capt., and relinquishes the rank of Maj.

Capt. C. G. Irwin (late R.A.M.C., S.R.) to be Capt.

Capt. S. Summerson to command 8th (London) Sanitary Company.

ROYAL AIR FORCE.

Flight Lt. E. A. Lumley is promoted to the rank of Squadron Leader.

Flight Lts. J. F. Gallagher and James Craig (hon. Squadron Leader) relinquish their temporary commissions on ceasing to be employed and are promoted to the rank of Squadron Leader.

THE headquarters of the National Council for Combating Venereal Diseases, in future to be known as the "British Social Hygiene Council, Incorporated," have been removed from 102, Dean-street, W., to Carteret House, Carteret-street, Westminster, London, S.W. 1.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CXXIV.

THE TREATMENT OF DEMENTIA PRÆCOX.

1. THE INVESTIGATION OF THE CASE.

THE condition known as dementia præcox was first described by Kraepelin as including a large group of insane patients, mainly adolescents, who, after passing through phases of extreme mental excitement, settled down into a progressive dementia. From this early description the term derived a sinister connotation in view of the terminal dementia, and indeed, for a time, whenever a suspected case recovered the diagnosis was called in question.

Of late years, however, the conception of the disorder has radically changed, and the prognosis, although not favourable in any advanced stage of the disease, yet affords considerable hope if cases are placed under treatment sufficiently early. In out-patient clinics and in private practice it has been possible to investigate cases at a much earlier stage than that which would warrant certification as insane and detention in a mental institution. It has become clear that the original conception was derived from the study of severe and degenerative end-products of a process of which the early symptoms may be manifested by many adolescents whose mental status would not be seriously questioned. The most satisfactory view of the causation of the condition is to regard it as the failure to adaptation of the individual under the stress of circumstance. No one can have failed to realise that from the time of puberty, through adolescence, and up to adult life, great changes are in progress physiologically and psychologically as the boy grows into the man and the girl into the woman. These changes are such as to fit the individual for the detail of his life, and they should so march as to keep pace with the increasing demands for self-control and a sense of responsibility. Growth, both mental and physical, may be looked upon as the unfolding of the bud, a natural process of development; vagaries in the final form depend upon the innate characteristics and upon the pressure of environmental factors. There is a continuous modification of the organism, constituting a delicate adjustment to the natural process of growth on the one hand and to the moulding pressure of the environment on the other; a satisfactory adaptation within the personality and character is shown by the practical capacity to utilise and obtain pleasure from the opportunities which life always presents. Should circumstances be unduly hard, should innate vitality be weak, or should the original germ-plasm be abnormal, then adaptation is liable to fail. The result may be a warping of the character and personality and consequently of the subsequent life-history, but in more serious instances a breaking-up of the integrity of the organism will ensue. This is shown mentally by a schizophrenia or dementia præcox development, and the demented mind will be housed in a dilapidated physical body which exists vegetatively, and is an easy prey to infection by such organisms as those of tuberculosis or pneumonia.

If the disorder is to be successfully combated, it is of the utmost importance that early failure of adaptation or the tendency to such failure should be recognised before the establishment of degenerative changes such as those described by Mott in the endocrine organs and in the central nervous system. Yet it is an extremely difficult task to set forth in any systematic way the indications which are of value, for there is no definite organic sign, and the symptoms of early failure of adaptation are revealed only in the higher mental functions.

Suspicious Symptoms.

The spring-time of life is noted for inconsequentiality and variability of conduct and thought, and it must not be assumed that extravagance in either direction is necessarily a mark of mental deterioration, but normal biological evolution ensures that there shall be a swing back from any extreme to adjustment to practical life. Experience must be eagerly courted and as intensely avoided from time to time; disappointments must be encountered, successes must be lived down, childish sentiments must be superseded, and the domination of the parents must give way to self-conscious recognition of the ties and limitations as well as of the possibilities of adult life. Many of the episodes of youth, its emotional storms, its ideational excursions, are of the nature of psychotic crises through which the more fortunate individual passes by virtue of a firm supporting home influence and his own innate stability. Where the home influences are complex and where there is a constitutional weakness, serious results may follow. Persistence of mood is, perhaps, the most striking of the early symptoms, for it is not normal for the adolescent to be depressed, obstinate, or sulky for more than a few days at a time, nor should he live in a constant state of lively self-satisfaction. There should likewise be a fluidity of interest; absorption in one person, one kind of play, or one line of work for several months on end portends failure of proper development. Self-absorption is natural in the girl of from 16 to 20 as is conceit in the boy of the same age, but neither state should be so persistent or so profound as to interfere with enjoyment of social intercourse and a proper consideration for the practical details of life. Self-depreciation with undue sensitiveness, persisting for any length of time, is strongly suggestive of some internal difficulty of adjustment. Religious conversions, sudden changes of disposition, or of the choice of milieu are always indicative of important subjective crises and show that the patient needs careful handling for the time.

If the stress is not relieved, grosser symptoms are encountered, such as seclusiveness or deliberate withdrawal from play or home life; frequent and violent emotional storms of anger or of tears; and obstinacy carried to the point of negativism, which is a studied and deliberate opposition to the wishes of parents or friends, persisting and involving considerable limitations on the subject. Apathy and listlessness in the presence of opportunity for enjoyment or progress are characteristic of a certain type of præcox development. Regressions to more childish ways, an indifference to dress, to appearance, and to the opinion of others, and a falling away from the intellectual standard attained are all features of importance. Temperamental inadequacies, a failure to develop the normal interests, such as dancing in the girl and sports in the boy, are the forerunners of future difficulties.

As the condition progresses more positive symptoms appear—e.g., passionate attachments between children of the same sex, ruthless antagonisms between members of the family, habits of a perverted nature, sexual or otherwise, careless behaviour fraught with danger to the self or to others, violent assaults, destructive outbreaks, and phases of intense restlessness with excitement. Finally, it becomes apparent that the patient is definitely deluded or is being distracted by hallucinatory voices, while faults of conduct, of commission or of omission, show that a serious mental change has occurred.

Physical Signs.

Physical signs are not wanting; pathologically, as Mott has demonstrated, the disorder is associated with disturbance of the endocrine system, and there are indications pointing to this morbid change, such as alterations of nutrition, excessive adiposity, or emaciation. There may be rapid overgrowth of the bony framework or a failure of physical development.

The normal distribution of hair for the age or sex may be greatly disturbed, and there are changes in the texture of the skin with a patchy hyperidrosis. In the female there is invariably a disturbance of the menstrual function; usually it is delayed and, when established, there may be marked irregularity or suppression for months or years.

As a rule the patient is brought to the doctor with a very vague history of "nervousness," of "being run down," or "not quite himself lately." The tendency is for the case to be regarded as belonging to the group of functional nervous disorders, but no label of "hysteria" or of "nervous exhaustion" should blind the practitioner to the essential mental nature of the disturbance. Having satisfied himself that he is not dealing with an organic disease, he has to make up his mind whether the failure of adaptation is to be considered due mainly to innate weakness of constitution or to pressure of circumstance. The personal and family history will indicate to some extent how far responsibility should be ascribed to the innate factor, but much caution must be exercised in accepting the statements of the relatives. It is best to get them to describe facts of the patient's history rather than to listen to their interpretations. If an aunt, for instance, is said to have had "nervous breakdowns," the practitioner should ascertain whether these entirely incapacitated her and, if so, whether she were treated at home or away; in the latter case the breakdown was probably psychotic and therefore would have considerable bearing on the prognosis of the case under consideration. The character of the parents or guardians should be carefully estimated. If they are faddists, eccentrics, or emotionally unstable individuals, then the patient will have been subjected to much harmful emotional influence, and the disturbance may be a natural outcome of such an environment and accordingly more favourable in outlook. Where the parents show sound common-sense and can be regarded as competent not to make life impossible for a developing adolescent the occurrence of a breakdown is all the more grave. In older patients, young men at college and girls away at school or engaged in full social activity, inquiries must be made as to any emotional situation which may have arisen. Where a love affair has played an important part as an exciting cause there has usually been some abnormality; either the patient has not been able to derive proper satisfaction within the bounds of convention or else these bounds have been overstepped. In cases where the difficulty in the life of the patient is one that time cannot solve the prognosis is bad. For instance, a young man, the son of a widow, had made great efforts to pass an examination which would have given him an assured position and so enabled him to support his mother. He was unsuccessful and developed an extreme depression from which he passed into an acute dementing psychosis. Here the opportunity of his life had gone, never to recur, and the situation could not be solved by time.

THOMAS BEATON, O.B.E., M.D., M.R.C.P.Lond.,
Senior Assistant Physician, Bethlem Royal Hospital.

(*To be concluded.*)

ROYAL COMMISSION ON NATIONAL HEALTH INSURANCE.—The twenty-ninth meeting of the Commission was held at the Home Office, Whitehall, on May 21st, Sir Arthur Worley in the chair. Evidence as to the organisation and procedure of medical institutions was given on behalf of the Friendly Societies Medical Alliance by Mr. S. A. Syddall and Mr. Samuel Pride; on behalf of the Friendly Societies Medical Officers' Union by Dr. D. Holmes, Dr. John H. Roberts, and Dr. A. Hamilton; and on behalf of the South Wales and Monmouthshire Alliance of Medical Aid Societies by Mr. W. Conway and Mr. Evan Pugh. Thereafter the Society of Medical Officers of Health, represented by Dr. R. A. Lyster and Dr. J. J. Buchan, gave evidence relating to extensions of medical benefit and reorganisation of the various existing public medical services. Proof copies of the oral evidence and the relative statement submitted at the meeting of May 7th are on sale at H.M. Stationery Office (3s.).

Special Articles.

THE MILK-SUPPLY AND ITS IMPROVEMENT.

BY WILLIAM G. SAVAGE, B.Sc., M.D. LOND.,
COUNTY MEDICAL OFFICER OF HEALTH, SOMERSET.

I.—ESSENTIALS OF THE PRESENT POSITION.

(*Continued from p. 1097.*)

THE first part of the summary considered only tuberculous contamination. We have now to note:—

Other Kinds of Bacterial Milk Contamination.

The facts are so well attested that it is not necessary to discuss these in detail. Only two points demand consideration, i.e.: (1) Is there any evidence, both as regards the bacterial cleanliness of milk and specific contamination with the organisms associated with infectious diseases, that conditions are improving and less unsatisfactory than as set out in numerous books and special papers? (2) Apart from recognised specific bacteria, is it of any moment that milk is heavily contaminated? Is it possible to take the line that the only bacilli we have to trouble about are the known specific bacilli and the others are only harmless saprophytic organisms which do not matter?

As regards the first consideration, from my own experience and as judged from published reports, I consider that up to two or three years ago there was little if any improvement in the bacterial contamination of milk. Premises were slowly, in most areas very slowly, being improved, but in many districts even this was negligible, while as regards methods little or nothing in the way of a cleaner collection of milk was appreciable. On the other hand, as regards distribution risks considerable improvements were effected.

Undoubtedly, during the last few years progress has been made, in part shown as improved premises, some improvement in the adoption of cleaner methods of milking, much more in regard to the installation into the minds of the producers that their existing methods did not meet with modern requirements, and most of all in greater care and attention to the milk after it leaves the hands of the producers. Amongst these, most importance is to be attached to the sowing of the seeds of dissatisfaction with existing methods in the minds of the producer, and the recognition which he is now receiving that his difficulties are considerable and need sympathy and help to surmount them. Incidentally, it will be shown later on how very great is the leeway to be made up before the conditions in the milk trade can be passed as satisfactory. Outbreaks of infectious disease spread by milk are still fairly frequent, and the diminution, if any, is due not to greater precautions in connexion with the supervision of the milk trade itself, but to the greater thoroughness with which cases and contacts of cases are guarded from coming in contact with milk.

The second point merits consideration because the argument is often heard that bacterial contamination of milk is of no moment in itself if tubercle bacilli or other pathogenic bacilli are eliminated. In other words, dirty manure-laden milk may not be nice but it does no harm. A good many considerations suggest that this is not a sound argument. On the bacteriological side we find that the bacterial flora of dirty milk is very complex. It is composed of bacilli of the *B. coli* group, a good many non-lactose fermenters, many anaerobes like *B. welchii*, streptococci of many types, and all sorts of other bacteria. While undoubtedly the majority are of no pathogenic significance, it is impossible to speak with any certainty about the others. The streptococcus group comprises strains which are amongst the most dangerous bacteria, and our knowledge is all too inadequate to state with any assurance that some of these highly pathogenic strains are not included in the flora of ordinary dirty milk.

The susceptibility of the infant gastro-intestinal tract to bacterial invasion is a well-attested fact. That scourge of infant life—summer diarrhœa—has never had its ætiology explained, and the theory that it is not an infection with one specific type, but has a complex bacterial origin from many different types, such as streptococci or non-lactose fermenting bacilli which may be met with in contaminated milk, has at least as much to support it as any other conception as to its origin.

Numerous epidemiological studies favour the above contention, and show that the substitution of a milk reasonably free from bacteria for one heavily contaminated is directly associated with a material decrease in infant mortality-rates.[6] Apart from such non-specific or, probably more accurately, not definitely ascertained specific infections, it has to be borne in mind that the processes necessary to produce clean milk in themselves definitely reduce the likelihood of known specific bacteria gaining access to the milk. For instance, diphtheria, scarlet fever, typhoid fever, and septic sore throat are frequently spread by milk and usually from its contamination by an infected milker. Given such an infected milker, the liability of the milk to become specifically infected is immensely reduced when strict cleanliness is observed. This important point is frequently overlooked. In the same way all the tubercle bacilli in milk do not come direct from an infected udder, but many gain access from cow manure. The habits induced by the practice of clean milk production include care and attention to the milkers, and help to increase the barrier against specific infection.

The facts strongly emphasise the need to follow for milk the broad public health rule which teaches that the reduction of general bacterial contamination, although we may not be able to indite a specific agent, is usually followed by a lessening of infection from that source.

The Distributory Milk Trade and Clean Milk.

Point No. 6 requires consideration because this section of the trade is powerful and vocal, and its utterances would lead the uninitiated to imagine that from its efforts conditions are so improved that a clean pure untreated milk is being supplied. The large milk companies have materially improved the handling of milk *after* it is delivered to them. Cooling is increasingly practised, and contamination during subsequent stages is reduced by more rigid cleanliness of vessels, greater supervision over personnel, and lessened opportunities of contamination from outside sources.

On the other hand, I am unable to find evidence that they exert any controlling influence of moment over the bacterial quality of the milk which reaches their collecting depôts. Against this view it is possible to point to regulations in regard to the production of milk which some of the big companies have framed, and to the statement that inspectors are provided who exercise supervision over the conditions of milk production. Possibly these measures exert some educational influence, but my personal experience, which is very extensive, is that milk producers sending their milk to companies with these regulations are no cleaner in their methods than the average milk producer. To make the control over production more than a dead-letter, I have offered in two cases specially to report to the company producers whose methods are very unsatisfactory in order that the purchasing company can take action, but the offer has been declined.

The results of numerous bacteriological samples show that much of the milk delivered to the collecting depôts, most of which are connected with distributing companies, is grossly contaminated bacterially, and the only purification step taken is artificial—i.e., dirt extraction and pasteurisation. The milk-distributing trade could enormously improve the bacterial quality of the milk-supply within a very short period by the simple expedient of offering a higher price—it need be only a slightly high price—for milk so collected that it has a low bacterial content. I am unaware of any adoption of this attitude in this country, and although I have suggested it in several quarters it has never been seriously considered.

Chemical standards for delivery of milk to the distributor are widely adopted, because milk with a high cream content is a business asset. A low bacterial content is neither an asset to producer or distributor under present conditions unless the milk is obtained so pure that it either can be sold as graded or render all pasteurisation unnecessary. It is of importance to realise this factor since it destroys the basis of the complacent argument that the milk trade as a business proposition will as a whole improve its supply without outside compulsion. As explained under pasteurisation that trade process meets their business requirements, and there is no driving force behind any other remedy.

Pasteurisation.

Pasteurisation is a key problem in connexion with clean milk. Much of the abundant literature on the subject is loose and confusing, mainly because essentially different things are discussed as if they were identical. In connexion with milk we have to distinguish two types which for convenience may be designated *controlled* and *uncontrolled* pasteurisation.

Under the Milk (Special Designations) Order, 1923, a grade of milk "pasteurised" is recognised. It is defined as milk "retained at a temperature of not less than 145° and not more than 150° Fahrenheit for at least half an hour," and immediately cooled to a temperature of not more than 55° F. This may be called controlled pasteurisation since it is something quite definite. As such, it is possible to determine with certitude whether pathogenic bacilli will survive such treatment on the one hand, and on the other, whether the food value of the milk will be impaired.

In contra-distinction to such definite heat action the great bulk of the milk pasteurised in the country is dealt with by what may be termed uncontrolled pasteurisation. A "flash" type of pasteuriser is in general use through which the milk passes continuously, the milk being heated in its passage but only being retained at the maximum temperature for a brief moment, while for the rest of the time it is at a variable but lower temperature. There is no proper control, and I find different temperatures are used in different depôts, while it varies in the same depôt according to what the operator thinks is necessary in relation to the air temperature. The operators are untrained in the scientific principles involved, work by rule-of-thumb, and realise that when time presses they can expedite matters by passing the milk through faster. There is no guarantee that pathogenic organisms will be destroyed, or that the milk will not be damaged in its vitamin content.

Such uncontrolled pasteurisation of milk is very widely practised and in the milk depôts of Somerset the bulk of the milk is so treated summer and winter. Not infrequently the milk is again pasteurised in the large urban area to which consigned. Such milk is not labelled as pasteurised. This extensive uncontrolled pasteurisation of milk is a trade adaptation not to make milk safer but to keep it saleable and prolong its life. That is the sole reason why the considerable expense of doing it is incurred.

The advocates of pasteurisation are fond of stating that its adoption does not interfere with steps to obtain a clean milk. I have rarely heard a more absurd statement or one more in conflict with the facts. In early days when milk was produced near the milk consumers the trade managed, but when long-distance milk conveyance became a necessity and milk could not be delivered under 24 hours from the time of production, one of two things had to happen. Either the milk (at least in summer) had to be artificially preserved, or it had to be collected reasonably free from bacteria and sent cool. The former was the easier and the cheaper course, and when the addition of chemical preservatives was stopped, heat was the

[6] For details see Savage's Milk and the Public Health, Macmillan and Co.

alternative adopted. Pasteurisation enables initially dirty milk to survive as a commercial product, and but for it clean cool milk as the only alternative would have had to be provided. In view of the practical difficulties and cost of such a pure clean milk this may have been unavoidable, and, indeed, the best plan at the time, but the fact remains that pasteurisation has come in, and remains, as a substitute for cleanliness in production and handling in this country.

At the end of 1923 the number of licences granted for the sale of "pasteurised" graded milk was 164 (shops 107, depôts 57), an insignificant proportion of the whole. A very large proportion of the milk in the country is submitted to uncontrolled pasteurisation.

The Position of the Milk Producer.

Broadly considered, milk producers handle their milk in one of three ways.

One group comprise producers who are themselves distributors. As a rule the question of souring of the milk does not arise, as most of the milk is distributed within a few hours of production to customers in the vicinity. If, however, they can earn and maintain a reputation for the supply of really clean pure milk, such a reputation is an asset of value and likely to increase their trade. This group of producers is the most sensitive to suggestions as to improving the bacterial quality of their milk.

A second group comprises producers who deliver in bulk to dairies in their immediate vicinity. If the distributing dairy is not too large, so that the contributing milks maintain a measure of identity, local reputations are of some but limited value, and diminish in importance with the amount of milk handled. Producers of this group can be induced to take a little interest in the quality of the milk they deliver.

The main group of producers deliver in bulk to milk-collecting depôts situated either in their vicinity or in large towns. Their milk is at once mixed with other milk and promptly loses its identity. When delivered and accepted the producer has no further interest in it. Provided such milk is not so acid as to be rejected, from the business point of view there is not the slightest inducement to the producers to supply a cleaner article than will be accepted. This constitutes the basic difficulty in the way of reform in production. The producer with perfectly unanswerable logic points out that what the milk inspector asks costs money, and if he spends it he will get no more for his milk; why should he do this and that when others do nothing. The much higher standard of supervision over cowsheds in urban areas than over those in rural districts is responsible for much heartburning amongst milk producers.

All acquainted with the position must feel considerable sympathy with the milk producer under the present difficult conditions. It is essential that the clean milk producer should not be penalised at the expense of the neglectful producer, and he is entitled to ask that a reasonable margin of profit should not be diminished by unreasonable demands or by requirements not universally enforced.

Losses in the Milk Trade from Contaminated Milk.

In the main the direct losses are from two sources—from milk which goes sour and is unfit for distribution, and milk which, although not yet sour, requires pasteurisation before delivery to the consumers. As regards the former, no exact figures are available, but the Second Interim Report (1917) of the Committee on the Production and Distribution of Milk gives particulars of one firm which, between April and August, 1917, received 68,000 gallons of milk (value about £4000) in a sour condition, and the Committee quote the opinion of several independent witnesses that the average percentage of London milk lost through souring was from 1 per cent. in winter to at least 2 per cent. in summer. A loss of 1 per cent. for London alone means a loss of about 900,000 gallons, which at 1*s.* 2*d.* per gallon is worth £52,500. A report[1] issued by the Ministry of Agriculture calculates a loss of at least 1 per cent. sour and in other districts quoted 1–2 per cent. loss.

As regards the cost of pasteurisation, this last report takes 10 per cent. as demanding pasteurisation to save it. It puts the cost of this at ½*d.* per gallon, or over £2000 per million gallons handled. The yearly consumption of liquid milk is about 700 million gallons, so the loss from this cause is considerable. Also 10 per cent. is a totally inadequate amount to allow for this item, as it does not include the additional milk which is pasteurised because of the fear that it may become sour. The total milk pasteurised is probably at least 50 per cent. of the whole supply (Dr. Robertson, M.O.H. of Birmingham, considers that more than 70 per cent. of the milk of our large towns is pasteurised). The pasteurisation of 350 million gallons at ½*d.* a gallon represents £727,500.

A third factor in the question of cost is that the consumption of milk is undoubtedly restricted by the fact that so much of it goes sour in the homes of the consumers. A less perishable commercial product will stimulate and increase the consumption of liquid milk. This will help the producers, since larger herds are more economical to maintain, and it gives a more certain market, while it will help the distributors, since milk is more profitable sold as liquid milk than when the excess has to be converted into milk products. These three factors together are probably sufficient to justify the ninth postulate set out above.

Adequacy of the Existing Legal Powers.

The connexion between the quality of the present supply and the inefficiency of the existing legal powers is a close and important one. It will, therefore, be discussed in some detail in the next article.

Contamination upon Consumers' Premises.

The want of care which milk receives in the homes of many of the consumers is well known and needs no detailed discussion. A minority of authorities consider the bacterial contamination from this source as the most important which milk receives, but this is not a view with which I can agree in view of the fact that any initial contamination with bacteria is multiplied many fold before it reaches the consumer, and this is only true to a limited extent for bacterial additions in the home. The want of care in the home is only in part due to negligence; a contributory factor of great importance is the very inadequate facilities in the houses of the poorer classes for food storage.

Graded Milk.

The educative value of graded milks will be discussed in a later article. As a direct contribution to the bulk of milk available to the consumer their effect is insignificant. On Dec. 31st, 1923, the producers of these milks were: Certified 55, grade A (tuberculin tested) 46, grade A 50; total 151. At the end of 1922 the total number was 63. In the county of Somerset, with over 5000 milk producers, those producing graded milks at the end of 1924 numbered only five—i.e., certified 1, grade A (tuberculin tested) 2, grade A 2.

(*To be continued.*)

[1] No. 41: Studies Concerning the Handling of Milk, 1924.

RECONSTRUCTION OF ST. BARTHOLOMEW'S HOSPITAL.—In his report, as treasurer, for 1924, Lord Stanmore says that no definite information can yet be given as to the reconstruction of the hospital. It has, however, become clear that the required additional accommodation cannot be provided on the existing site; certain property in the immediate vicinity which might be utilised advantageously has therefore been acquired. The leasehold interest in Nos. 18 to 21, Charterhouse-square and Nos. 1 to 5, Charterhouse Mews (built a quarter of a century ago as an hotel) has been purchased for £51,262, and negotiations for the acquisition of the freehold and of that of No. 22, Charterhouse-square, adjoining, are in progress. With comparatively slight alteration these premises would be suitable for the housing of a large portion of the nursing staff.

ROYAL COMMISSION ON LUNACY AND MENTAL DISORDER.

FURTHER SITTINGS.

(*Continued from p. 1048.*)

THE sittings of this Commission were resumed on May 22nd, Mr. H. P. Macmillan, K.C., the Chairman of the Commission, presiding.

EVIDENCE OF THE NATIONAL COUNCIL FOR MENTAL HYGIENE.

The first witnesses were Dr. Reginald Worth, Dr. E. Farquhar Buzzard, and Dr. H. Crichton-Miller, and they appeared on behalf of the National Council for Mental Hygiene. The Chairman explained that it was proposed to incorporate the Council's précis of evidence in the records, and to question the witnesses on certain points. The Council, the witnesses' précis stated, aims at bringing the treatment of mental disorder into the fold of general medicine. Whilst mental hospitals would still be necessary, there remained a large class of patients for whom at present very little provision was made—the class of early and often recoverable cases, attention to which gave the greatest hope of diminishing the incidence of more serious mental disorder, or of improving its treatment and understanding its causation. There was a world-wide trend in this direction, as shown by the formation of clinics or special departments to deal with such patients in connexion with general hospitals. Cases in which there was definite alteration of conduct, however, were not suitable for these clinics.

Patients suffering from mental disorder included, the Council say, cases in which the question of certification did not arise, such as some cases of hysteria, fears, neurasthenia, and anxiety neuroses. Secondly, those in regard to whom the question of certification arose, but who need not necessarily be certified, either because they were willing to submit to treatment, or were non-volitional—i.e., did not express objection to treatment. Thirdly, there were those for whom treatment and care were required, but as these were refused by them, obligatory treatment became necessary. It was contended that this country is lacking in adequate provision for dealing with the situation in regard to early cases. In 1923 there were 3949 suicides (2887 men and 1062 women), and it is held that these figures show a want of adaptation which is abnormal, and that the numbers could be definitely reduced by a better understanding of mental states. Incidentally, reference is made to the increasing number of cases showing mental symptoms after encephalitis lethargica, the notified cases of this kind being 1470 in 1921, and in 1924 3629. The proposed mental clinics could help materially in dealing with these cases.

Facilities for Early Cases.

The National Council circulated to 237 hospitals and infirmaries a questionnaire as to facilities for treatment of early mental cases, and 159 replies were received. In 135 institutions there was no provision for such treatment, and in 24 there was some provision, but in only five were there facilities for the in-patient treatment of early mental disorder. Many patients already attended general hospitals without realising that they were primarily suffering from mental disorder, and they continued to attend the out-patient department even when their condition was correctly diagnosed, as no means of giving them proper conditions of treatment existed, and they might be undermining the mental health of every member of their household. The department for these cases should be in charge of a suitably qualified physician. In these circumstances many cases regarded as "mental" would be found to be primarily due to physical disease. From such an arrangement, too, medical students and nurses would benefit in the matter of instruction. The Council suggest that visitation of mental patients in these clinics would not be needed, but naturally a grant of money by a public body would carry the right of supervision.

A further recommendation is that voluntary boarders should be allowed in all county and borough mental hospitals, and that the voluntary boarder system should be extended to rate-aided institutions. Medical practitioners should be allowed, they submit, to treat willing and non-volitional patients without certificates in registered nursing homes and similar institutions. They consider that wherever non-volitional cases are received some form of notification to, or supervision by, the central authority is desirable. They urge the registration of all nursing homes under the Ministry of Health; every type of abuse which might arise could then be dealt with by the ordinary process of law, and patients could have a wide choice as to where they would be treated.

Administration of Public Mental Hospitals.

The Council feel that hospital methods should be adopted in these institutions to the fullest extent, though they make this statement without implying to what degree this does not obtain already. Consultants in general medicine and surgery should be appointed for mental hospitals, and the staff of the latter should be permitted to hold corresponding positions in psychiatry at general hospitals. The Board of Control should have greater powers to enforce the adoption of such facilities where these do not exist. Practitioners should be enabled to keep in touch with their patients in mental hospitals, and to assist in the treatment where possible; they could then continue treatment when the patients returned home.

After-Care.

The Council recognise that in many cases the recurrence of mental disorder is precipitated by the patient's return to home conditions which are unsuitable; therefore such work as that being done by the After-Care Association should be in every way encouraged, and should be generously supported by the financial authority. In conclusion the Council state that such problems as illegitimacy, dependency, and the prevalence of venereal disease, prostitution, vagrancy, alcoholism, &c., are closely related to minor states of mental disorder, and are often caused by them. They consider that there is no just reason for omitting the skilled treatment of those patients on a voluntary basis, in the same way as other diseases are dealt with.

Dr. Buzzard, in answer to the Chairman's questions, said the Council was founded in 1922, and that it had a distinctive purpose in contrast with that of other bodies engaged in this class of work. One of its aims was to educate the public in regard to mental matters; and the education of the medical profession in psychiatry was recognised as deficient, though much of his practice would bring him into contact with it. Dr. Buzzard agreed, however, that students had already to become acquainted with far too many specialties. The witness did not advocate treatment in a general hospital of a case which needed restraint for any length of time.

Supervision of All Nursing Homes.

The Chairman said the suggestion that all nursing homes should be under supervision was a novel one and asked whether the witnesses thought it would be welcomed.

Dr. Buzzard replied that probably it would not be generally welcomed. The idea underlying the suggestion was the same as that concerning the treatment of mental cases in general hospitals: that where one kind of disease was dealt with another kind also could be treated.

Lord Russell asked whether the Council had considered the question of defining a nursing home in such a way that in the event of having to prosecute it would be clear, and Dr. Buzzard said that had not been gone into, but most members of his Council agreed that some kind of registration and supervision of the nursing home was desirable. The standard of

these homes was capable of improvement, and it would be difficult to enlarge the liberty with which mental cases were treated in nursing homes unless all nursing homes were brought into the same category.

Dr. Worth said that if a person lost volition he should, in his view, be simply notified to the Board of Control, so that that body could know where he was. But there was no need to notify a patient who voluntarily sought treatment.

The Chairman asked who would define the voluntary patient, and the reply was that the doctor in charge was the person to do that.

The Medical Superintendent's Duties.

Dr. Worth, replying to a question by the Chairman on this matter, said he did not think the subject had been discussed by the Council. But he knew one institution in which a medical superintendent had a colleague who was administrative director, and the two were not on speaking terms. The duties were so difficult to arrange that it was necessary to have one head, who must be a medical man. This was the more necessary as the whole régime and outlook concerning the patient was a part of the treatment. The Council wished to preserve the contact between the patient and his own medical practitioner; also that there should be a closer association between mental hospitals and teaching institutions, as well as a more frequent and general resort to consultants. In his own mental hospital, which was for rate-aided patients, a retaining fee was paid to consultants. Dr. Worth dissented from the idea of considering the mental hospital as a place of last resort. Mental hospitals themselves showed a high percentage of cures. In cases requiring prolonged treatment, the patients ought to go straight away to a mental hospital.

Advisory Powers of the Board of Control.

Dr. Crichton-Miller said he favoured the Board of Control being given greater advisory powers than it at present possessed, and thought it should be possible for a general practitioner to consult the Board in regard to a case presenting difficulty. He recognised the help which the Board already gave in individual instances, but he wished that body to have wider statutory powers. A practitioner could then treat a mental case with the feeling that he was not incurring serious legal responsibility.

CHAPLAINS AND RELIGIOUS EXERCISES.

The Bishop of Chelmsford attended to speak in support of a more clear recognition of the status of chaplains in public mental hospitals. At present the appointment of these gentlemen rested with the respective medical superintendents. Attendance of patients at services held by the chaplain should be absolutely voluntary, and no question of a "test" should arise. Though the chaplain's remuneration should be based on the size of the institution, the witness would object to anything in the nature of a per capita scale. An effort was now being made to give some simple psychological instruction to candidates for ordination, in order to fit them to deal more satisfactorily with unusual and odd personalities.

Sir Humphry Rolleston said this question of the association of clergyman and medical man was a very important one, as there was sure to be some overlapping. Spiritual comfort given by the chaplain was closely related to the processes involved in psychoanalysis.

The Bishop replied that it was hoped there would be a happy partnership between the medical officer and the chaplain, just as in ordinary homes. It was felt that the appointment of chaplain should be a permanent one; in any case three years was far too short a time. In this connexion the question of superannuation was discussed. The witness did not think it wise for any man to be chaplain to a mental institution all his life; he should have a certain maximum period of service.

The Rev. W. E. Barnes, chaplain at the mental hospitals of Hanwell and Cane Hill, said he was appointed to the first named in 1920 and to Cane Hill in 1923. Formerly he was chaplain at the British Embassy Church at Petrograd for six years. Questioned as to his activities at the two mental hospitals, he said he was a friend of the patients in a different way from the doctors, and he saw them at all hours and in all circumstances. At Hanwell there were 100 communicants, at Cane Hill 60. Patients looked upon him as a definite link with the outside world, and when relatives did not take the necessary interest in patients he wrote to the former, often with good results. His relations with the medical staff were always friendly, and he frequently discussed cases with them. He had had no training for this particular kind of work until he entered upon his duties. Cases of ill-treatment of patients probably did occur, but he had never seen a case of punitive or vicious usage of a patient. He had heard, however, of two alleged cases having been investigated, in one of which the attendant concerned was dismissed.

THE LEGAL ASPECT OF LUNACY.

Sir Archibald Bodkin, K.C., attended to discuss with the Commission the legal aspect. He said he thought Part XI. of the Act might very well be re-drafted and very much condensed. When the Legislature passed the Mental Deficiency Act, 1913, it repealed the section which provided that the Order of the Commissioners in Lunacy should be accepted without further proof. Such proof was unnecessary, and in the Criminal Justice Bill now before the Commons this proving of signatures and orders of public authorities would be dispensed with, and if the Bill became an Act, this provision would extend to the Act of 1913. He agreed with the Chairman's suggestion that the subsection of Section 315 dealing with misdemeanours connected with detention and treatment of patients in unlicensed houses should be divided into two, with the appropriate penalty set out in each; or to have as many subsections as there were offences. A number of legal points were discussed by the witness in some detail.

EVIDENCE OF THE LORD CHANCELLOR'S VISITOR.

At the Monday morning session the chair was occupied by Mr. N. Micklem, K.C., and the witness was Lord Sandhurst, the Lord Chancellor's Visitor. He explained that he had been carrying out the duties of that office since 1910. There was now, he said, only one Master in Lunacy, though an Assistant Master had been appointed. Provisions concerning visitation were set out in Sections 183 to 186 of the Act. Rule 5 of the 1893 Rules enabled the Master to direct a visit in any case in which an Order appointing a receiver was pending, or in which an Order had been made under Section 116, and he appointed a visitor. Most of the witness's visits were made to private houses, the people concerned possessing some means. In the case of lunatics so found, the visitor had to pay two visits every year in every case, and the visit had reference not only to the lunatic, but also to his property and to the amount of his income and expenditure. Recommendations might then be made as to his property, such as the selling of a part of his capital, the proceeds to be devoted to his maintenance; or some of it might be more profitably invested. At present there were only 219 inquisition cases, but on the Master's books there were 6100 cases, any of whom there was the possibility of the witness being asked to visit. On the visitors' books there were 1100 cases, and 500 of these were classed as "not lawfully detained" under 116 (d), and in many of these the persons were weak-minded, proceedings having been taken because they could not manage their affairs. Three hundred of the 1100 were in institutions for the insane. The special visits paid by request in 1924–25 numbered 234. When an inquisition case was under private care, the expectation was that he would be visited four times a year for at least two years after the inquisition, as such

persons had not the advantage of any other visitation. There were at present only two or three such cases. About 1850 visits were paid each year. In the case of a new patient the witness said he always paid a surprise visit, and he preferred to ascertain some particulars about him first, for a knowledge of his tastes and leanings facilitated a congenial conversation. He inquired into everything bearing on the patient's comfort and well-being. Many of the patients visited by the Chancery visitors were not certified, nor even "alleged lunatics"; they were persons who, by reason of mental infirmity arising from old age or disease, were incapable of managing their affairs, and for whom a receiver had been, or was sought to be, appointed under Section 116 of the Act of 1890. Most of such persons were suffering from some form of senile decay.

Complaints.

Fairly frequently the witness found complaints were made as to the food supplied. He had been into the kitchens and seen the food prepared, and he had been present when the patients had their meals. His view was that the meals were as good as one could expect in an institution of this character; there must be a certain amount of routine, and he would not describe the meals as dainty. If there seemed to be reasonable ground for complaint he reported the matter to the Master in Lunacy; but usually he suggested to the medical superintendent that something more might be done for the patient. Complaints about noisy, offensive, and insane patients were really a matter of classification of patients, and the complaints under this head were often well founded, the first people to admit this being the medical superintendents themselves. Basingstoke mental hospital was mentioned as a model to follow in this respect. With regard to alleged roughness and force in dealing with patients, many required some force for their control, and some were aggressive. Even senile cases were liable to periods of impulsive violence, and the witness gave an instance of this. Usually when a complaint was made, though he talked to the nurses, other patients, and the medical staff, he could not find anything tangible to work on. If he felt there was anything serious he would report it to the Master, and the Master would report it to the Commissioners. In the case of private care, a valid complaint would result in the removal of the patient to some other care.

In answer to Sir Ernest Hiley, the witness said that he had very seldom had occasion to report a case of alleged bullying or ill-treatment in the last 15 years.

The Law in Regard to Visitation.

Lord Sandhurst said the law was scarcely satisfactory with respect to visitation by the petitioner. In the petition he undertook, personally or by someone specially appointed by him, to visit the patient every six months; but there was no known way of enforcing this undertaking, and it was by no means always carried out. Neither was there any guarantee that the deputy would be a person agreeable to the patient. Usually it was desirable that the petitioner should be *en rapport* with the patient. His own experience was that the duty of visiting was rarely neglected in the humbler walks of life.

The Licensed House.

The witness said he considered that the licensed house fulfilled a most useful function, and regarded it as a misfortune that, under proper safeguards, no new licence for such could be granted. The smaller licensed house offered a degree of quiet and privacy and home-like conditions which larger institutions could not attain to; and if such accommodation was not otherwise procurable, the friends of patients were tempted to seek it in nursing homes or private houses, sometimes without certification. Two further complaints spoken of by the witness were insufficient personal attention by the medical superintendent and wrongful detention. The latter complaint was very common, but groundless, and the former was sometimes due to a personal dislike of the medical assistant. He said he had never met with a case which he considered had been wrongly certified, but he thought some patients were detained longer than was necessary.

EVIDENCE OF THE MASTER IN LUNACY.

In the afternoon the witness was the Master in Lunacy, Mr. G. M. Hildyard, K.C., who explained that when a person was certified as a lunatic he could no longer protect his property, which was therefore, to some extent, at the mercy of his relatives. It had been suggested that the latter might sometimes be tempted to get a weak-minded (but not insane) person certified so as to obtain control of his property. He could not say he had had to deal with such a case, but the possibility should be guarded against. At present a lunatic's maintenance was paid for in one of the following ways: By the guardians out of the rates (in the case of paupers); by the friends or relatives out of their own pockets; by trustees under a discretionary trust; by friends or relatives out of the lunatic's property (without authority); by friends out of the lunatic's property under authority other than that of the Lunacy Court; or by a committee or receiver out of the lunatic's property under the authority of the Lunacy Court. These the witness explained and discussed with the Commission separately; also the question of the expense of proceedings connected with the administration of lunatics' estates, the Master promising to send to the Commission some bills of costs. The Master also commented on the hardship suffered by the poor person of unsound mind by taking away his right to his old-age pension of 10*s.* weekly. If the projected new Pensions Act should pass the House, such hardships would be a good deal accentuated.

KING'S COLLEGE HOSPITAL.

FESTIVAL DINNER.

THE festival dinner of King's College Hospital was held at the Savoy Hotel on May 20th, when the Duke of Connaught presided. Covers were laid for nearly 350 guests. After the loyal toasts, the Duke of Connaught, in proposing King's College Hospital, remarked upon the financial strain which progressive scientific medicine and surgery imposed of necessity on an efficient hospital, but he was happy to report that great progress had been made in overcoming the adverse conditions that had been imposed by the war and its after-effects. Income had increased and expenditure decreased, but the two great objects the management had in view were first to pay off the debt, and secondly, to increase dependable income in order that more beds might be made available for ordinary patients. The total liabilities now, including the bank loan of £24,000, were not more than £32,000. For three years after the Armistice the hospital struggled against overwhelming difficulties. In 1919 and 1921 the expenditure exceeded the income by £38,000, and in 1920 the debt was increasing at the alarming rate of £1000 a week. Seven wards had to be closed as well as the convalescent home at Hemel Hempstead, and unfortunately the hospital was still without that very desirable adjunct. During the past two years ceaseless efforts had been made to raise money, and by the end of 1923 the debt had been reduced to £77,000. Last year Lord Hambleden with his usual generosity had cancelled his loan of £20,000 and a grant of £16,000 was made by King Edward's Hospital Fund, the grant being conditional upon 40 more beds being opened, of which 16 were to be reserved for accidents. With other help the debt had now been reduced to £24,000 and the closed wards had been reopened. Altogether 40 additional beds

had been provided for general patients since the beginning of the year. In order to maintain the hospital with its additional accommodation an appeal for subscriptions of £10,000 a year had been made, and his Royal Highness had received as a result of the dinner appeal the promise of a donation of £2500 from Mr. Bernard Baron besides other subscriptions of £1000. The equipment for the use of ultra-violet rays had been installed, but the apparatus was not as powerful as they could have wished, and there was an opportunity for someone to subscribe £200 or £300 to provide a method of treatment the effect of which was often remarkable. A new source of income available since the war was the payment by ordinary patients, and out of a total income of nearly £80,000 no less than £28,600 had been received from patients themselves, while approved societies had paid another £4800. Payments by private patients were increasing, especially from the professional and tradesman class, who were attracted to the hospital because they could not afford to pay the fees of nursing homes contributed towards hospital expenses.

Lord Hambleden, in his reply, said that by strict economy and through the fall in prices the management had been able to reduce the cost of beds by something over £1 per bed per week. When 22 years ago it was decided to remove the hospital from its old site the governors expressed the hope that the income to be derived from that site would be used for the endowment of the new hospital. Unfortunately, the site was still mortgaged in the sum of £80,000 used for building the new hospital. Apart from the old site the endowments were small, amounting to no more than £5000 a year, and for years past practically the whole of that income had been used to pay the interest upon bank overdrafts. Since the appeal was started last autumn the liabilities, which were then over £70,000, had been reduced to a sum approaching £20,000, and he appealed to all who respected the voluntary hospital system to make the liabilities disappear altogether. The hospital now served a population of something like two millions of people. In conclusion, Lord Hambelden referred to the help of Messrs. Holdrons which had resulted in a donation of £1000, the help of South London schoolboys and girls, and the generous support of working men.

Lady Cheatle then proposed in felicitous terms the health of the chairman, and his Royal Highness, in replying, remarked that it was the first time the toast had been proposed by a lady, and he congratulated her upon the admirable way in which she had done it.

Lord Hambleden announced that the total sum collected for the Duke of Connaught's list before the dinner was £7305, in addition to subscriptions amounting to 37 guineas a year. The total collected at the dinner was £6025, making a total of £13,381. There was a further sum collected last autumn of £12,613, bringing that total up to £25,995. Other sums received for the reduction of debt amounted to £40,000. The sum, therefore, given in reduction of the total liabilities of the hospital was £65,995. The Stock Exchange Dramatic and Operatic Society had, he said, subscribed £105 towards the ultra-violet ray apparatus, and had promised to make up the whole sum required by Christmas.

EPSOM COLLEGE: GERALD STANLEY MEDICAL SCHOLARSHIP.—The Council of the College are about to select candidates for a Gerald Stanley Medical Scholarship, which is open to the necessitous son of a medical man. Candidates must be fully 12 years of age, and be intended for the medical profession. The scholarship is of the value of about £130 a year, and is payable in advance to the Bursar of Epsom College. It will not be continued beyond the scholar's seventeenth birthday, by which time he should have passed the matriculation examination of the University of London or its equivalent. On joining a medical school the holder of the scholarship will be required to attach himself to that of St. Bartholomew's Hospital, where, under certain conditions, a further scholarship will await him. Full particulars and forms of application can be obtained from the Secretary, at the office of the College, 49, Bedford-square, London, W.C. 1.

REX v. PERCY BATEMAN: JUDGMENT.

IN the Court of Criminal Appeal on Monday last, before the Lord Chief Justice (Lord Hewart), Mr. Justice Salter, and Mr. Justice Fraser, the following judgment was delivered by the Lord Chief Justice:—

The appellant was convicted at the Central Criminal Court before Mr. Justice Shearman of manslaughter, and was sentenced to six months' imprisonment in the Second Division. He appealed by leave against conviction and sentence. This Court, after hearing arguments of counsel, quashed the conviction and intimated that a considered judgment would be delivered at a later date.

The appellant, who is a qualified medical practitioner, was indicted for having on July 30th, 1924, unlawfully killed one Mary Ann Harding. He was called in by the midwife on the night of July 23rd, and found a very unusual and difficult presentation. He administered chloroform and attempted unsuccessfully to effect delivery by the use of instruments. No blame was imputed to the appellant on that account. He then proceeded by using his hands to perform the operation known as "version," using, of necessity, considerable force. He worked at this operation for an hour, and then delivered the child which was dead. In removing the placenta he, by mistake, removed along with it a portion of the uterus. The patient was much exhausted, and the appellant did not expect her to live. He visited her twice daily until the 28th. Although requested by the husband and the midwife to have her removed to the infirmary, he did not remove her until the 28th, on which day he wrote a letter to the superintendent that was alleged by the prosecution to be uncandid. On admission to the infirmary she was found unfit to undergo an operation. She grew gradually weaker and died on the 30th. On a post-mortem examination the bladder was found to be ruptured, the colon was crushed against the sacral promontory, there was a small rupture of the rectum, and the uterus was almost entirely gone. The charges of negligence made against the appellant were, in substance, (1) causing the internal ruptures in performing the operation of "version," (2) removing part of the uterus along with the placenta, (3) delay in sending the patient to the infirmary. For the defence it was contended that (1) and (2) were, in the difficult circumstances of the case, not inconsistent with a fair degree of care and competence, and that to have moved the patient at an earlier date would only have accelerated her death.

At the hearing of the appeal, counsel for the appellant relied mainly on the following grounds: Misdirection in law, misdirection and non-direction on the facts, and that the verdict was against the weight of the evidence.

Before we deal with the directions of the learned Judge to the jury it is desirable to consider generally the law on this subject. In expounding the law to juries on the trial of indictments for manslaughter by negligence, the Judges have often referred to the distinction between civil and criminal liability for death by negligence. The law of criminal liability for negligence is conveniently explained in that way. If A has caused the death of B by alleged negligence, then, in order to establish civil liability, the plaintiff must prove (in addition to pecuniary loss caused by the death) that A owed a duty to B to take care, that that duty was not discharged, and that such default caused the death of B. To convict A of manslaughter the prosecution must prove the three things above mentioned and must satisfy the jury, in addition, that A's negligence amounted to a crime. In the civil action, if it is proved that A fell short of the standard of reasonable care required by law, it matters not how far he fell short of that standard. The extent of his liability depends not on the degree of negligence but on the amount of damage done. In the criminal court, on the contrary, the amount

and degree of negligence are the determining question. There must be *mens rea*. The difference between negligence and gross negligence is illustrated by the case of *Cashill* v. *Wright*, 6 Ellis & Blackburn 891, which was an action against an innkeeper for damages for the loss of the plaintiff's property stolen from him while he was putting up at the defendant's inn. The defendant contended that the loss had been occasioned or contributed to by the negligence of the plaintiff. At the trial the jury were directed that the defence failed unless they thought that the plaintiff had been guilty of gross negligence. On a rule for a new trial, Erle, J., delivering the considered judgment of the Court (Campbell, C.J., Wightman, Erle, and Crompton, J.J.), said: "The other question was as to the alleged misdirection in the direction to the jury that there must be gross negligence to maintain the defence. It does not appear that there was any information given to the jury as to what they were to understand by gross negligence. If they were told to understand by gross negligence the absence of that ordinary care which, under the circumstances, a prudent man ought to have taken, as seems to have been the meaning given to gross negligence in some of the modern cases cited before us, the direction as to the degree of negligence might not have been objectionable; but the legal meaning of gross negligence is greater negligence than the absence of such ordinary care. It is such a degree of negligence as excludes the loosest degree of care, and is said to amount to dolus." The rule was made absolute.

In explaining to juries the test which they should apply to determine whether the negligence, in the particular case, amounted or did not amount to a crime, the Judges have used many epithets, such as culpable, criminal, gross, wicked, clear, complete. But whatever epithet be used, and whether an epithet be used or not, in order to establish criminal liability the facts must be such that, in the opinion of the jury, the negligence of the accused went beyond a mere matter of compensation between subjects and showed such disregard for the life and safety of others as to amount to a crime against the State and conduct deserving punishment.

It remains to consider the application of this principle to cases like the present where death has been caused, in the exercise of his calling, by the alleged negligence of a person professing special knowledge and skill, and a charge of manslaughter is preferred.

The following cases may be cited as illustrating the language in which criminal negligence of this kind has been discussed and explained by Judges in modern times: Hales Pleas of the Crown, 429; *R.* v. *Williamson*, 3 Carrington & Paynes, 635; *R.* v. *Ferguson*, 1 Lewin's Criminal Cases, 181; *R.* v. *St. John Long*, 4 Carrington & Payne, 423; *R.* v. *Spiker*, 4 Carrington & Payne, 333; *R.* v. *Webb*, 1 Moody & Robinson, 405; *R.* v. *Spilling*, 2 Moody and Robinson, 107; *R.* v. *Whitehead*, 3 Carrington and Kirwan, 204; *R.* v. *Crick*, 1 Foster & Finlayson, 519; *R.* v. *Crook*, 1 Foster & Finlayson, 521; *R.* v. *Bull*, 2 Foster & Finlayson, at 202; *R.* v. *Mark and others*, 4 Foster & Finlayson, 353; *R.* v. *Noakes*, 4 Foster & Finlayson, 920; *R.* v. *Chamberlain*, 10 Cox's Criminal Cases, 486; *R.* v. *Spencer*, 10 Cox's Criminal Cases, 525; *R.* v. *Finnry*, 12 Cox's Criminal Cases, at page 626; *R.* v. *Nicholls*, 13 Cox's Criminal Cases, 76; *R.* v. *Doherty*, 16 Cox's Criminal Cases, at page 309.

The law as laid down in these cases may be thus summarised. If a person holds himself out as possessing special skill and knowledge, and he is consulted, as possessing such skill and knowledge, by or on behalf of a patient, he owes a duty to the patient to use due caution in undertaking the treatment. If he accepts the responsibility and undertakes the treatment, and the patient submits to his direction and treatment accordingly, he owes a duty to the patient to use diligence, care, knowledge, skill, and caution in administering the treatment. No contractual relation is necessary, nor is it necessary that the service be rendered for reward. It is for the Judge to direct the jury what standard to apply, and for the jury to say whether that standard has been reached. The jury should not exact the highest, or a very high, standard, nor should they be content with a very low standard. The law requires a fair and reasonable standard of care and competence. This standard must be reached in all the matters above mentioned. If the patient's death has been caused by the defendant's indolence or carelessness, it will not avail to show that he has sufficient knowledge; nor will it avail to prove that he was diligent in attendance, if the patient has been killed by his gross ignorance and unskilfulness. No further observation need be made in regard to cases where the death is alleged to have been caused by indolence or carelessness. As regards cases where incompetence is alleged, it is only necessary to say that the unqualified practitioner cannot claim to be measured by any lower standard than that which is applied to a qualified man. As regards cases of alleged recklessness, juries are likely to distinguish between the qualified and the unqualified man. There may be recklessness in undertaking the treatment and recklessness in the conduct of it. It is, no doubt, conceivable that a qualified man may be held liable for recklessly undertaking a case which he knew, or should have known, to be beyond his powers, or for making his patient the subject of reckless experiment. Such cases are likely to be rare. In the case of the quack, where the treatment has been proved to be incompetent and to have caused the patient's death, juries are not likely to hesitate in finding liability on the ground that the defendant undertook, and continued to treat, a case, involving the gravest risk to his patient, when he knew he was not competent to deal with it, or would have known if he had paid any proper regard to the life and safety of his patient.

The foregoing observations deal with civil liability. To support an indictment for manslaughter the prosecution must prove the matters necessary to establish civil liability (except pecuniary loss) and, in addition, must satisfy the jury that the negligence or incompetence of the accused went beyond a mere matter of compensation and showed such disregard for the life and safety of others as to amount to a crime against the State and conduct deserving punishment.

We have now to deal with the alleged misdirection. At the outset of the summing-up the learned Judge directed the jury as follows: "I want first of all to explain the law to you. The law is that anybody that causes the death of anybody else—it does not only apply to a doctor, it applies to motor drivers, railwaymen or signalmen, it applies to a number of people—anybody causing the death of anybody else is criminally responsible. It is equally clear law that no one is criminally responsible for what I call making a mere mistake, and it is really for the jury to draw the line between what is called making a mere mistake, an error of judgment, and doing something which is grossly and palpably wrong. I have only one objection to make to the law as put before you by counsel for the defence, that the man is bound to do the best of such skill as he has. That is not quite accurate. A medical man who practises for profit the medical profession professes skill. He does not come and say: 'I am an unskilled person'—he is engaged and professes skill. Of course, you will understand it is not for every humble man of the profession to have all that great skill of the great men in Harley-street, but, on the other hand, they are not allowed to practise medicine in this country unless they have acquired a certain amount of skill: they are bound to show a reasonable amount of skill according to the circumstances of the case, and you have to judge them on the basis that they are skilled men, but not necessarily so skilled as more skilful men in the profession; and you can only convict them criminally if in your judgment they fall below the standard of skill which is the least qualifica-

tion which any doctor should have. You should only convict a doctor of causing a death by negligence if you think he did something which no reasonably skilled doctor should have done." The learned Judge then quoted the language used by Chief Justice Tindal in *R.* v. *Ferguson*, above cited, and continued: "You have got to consider if this man, in anything he did, fell below the level which you expect of a doctor—below the degree of skill which you think you have the right to expect of a doctor—by no means the extreme skill everybody knows of, but that degree of skill which you expect from a doctor who attends an accouchement and who is taken to know his business."

In the course of his review of the evidence the learned Judge referred to the law in the following passages: "That is the whole of the evidence with regard to what is called the first part of the case. It is said that this man so treated her that by his treatment he committed all these injuries, he ruptured the womb, he ruptured her bladder in pushing about, and he caused the injuries to her intestines; and in the same way it is said that when he came to pull out the placenta, instead of pulling the placenta out of the womb he caught hold of, not the placenta, but some tear or slit in the torn womb and with a tug, the expression was 'a sharp pull,' he pulled it away. It is said by the Crown that that shows that in doing this, and in pulling out the womb, he was guilty of gross negligence. It is said on behalf of the defence—and they called eminent surgeons—Well, the nurse saw nothing wrong with the way he treated her, although the force was used and necessary, and it was unfortunate. It is said there was no gross negligence, and it is for you, if you feel any doubt, to see that the prisoner gets the benefit of the doubt. But are you satisfied on that that there was gross negligence? The doctors for the defence say this: they say, 'Oh, it is quite reasonable to mistake a tear in the womb for the placenta.' That is entirely a matter for you, and it is a view not entirely accepted by the doctors called for the prosecution, although they agree in cross-examination that after all this working a portion of the womb might be torn, but a reasonably skilful man might know the difference between pulling a womb and something that might be adherent to the inside, and the prosecution call attention to the fact of the steady outflow of blood and say that in pulling out the womb he was guilty of gross negligence, and the defence say it was a very natural mistake in the circumstances of the case." . . . "The Crown first of all say there was gross negligence (and you will not find it unless you are quite satisfied of it) in pulling away the womb at all—in what he did before and in pulling it away. It s suggested by the defence, nothing of the sort, at most and at worst it was a very difficult case, and at most and at worst it was a mistake, and we say it was not negligence; it was the sort of thing that might have happened in this remarkable case." . . . "Passing away from that and summing up the first case, if you think that you are quite satisfied that it was his treatment in tearing away the womb—previous to, and up to, tearing away the womb—you will convict him; if you are not satisfied and think that there was no negligence at all, or if you have a reasonable doubt whether there was gross and culpable negligence up to that point, you will acquit him." . . . "That, substantially, is the case for the Crown on the second part of the case, and they say, substantially, he was guilty of grave, wicked neglect and culpable neglect of duty in not taking some steps to remedy what has been done by his own fault or, if you do not think it was gross negligence, they say he ought to have done something to try and save the woman's life, but he did not do anything because he wished to save his reputation." . . . "These are the historical facts. Do you think, assuming you are satisfied by the prosecution, that in pulling away the womb at all, and the acts preceding that, he was guilty of gross negligence and culpable negligence in causing her death? Then you come to the second head: was he guilty of gross or culpable negligence in accelerating this woman's death by so neglecting her from the time that he knew her uterus had been removed? If you are satisfied that the woman wanted treatment, and from the history of the case, if she had had some treatment, her life would have been prolonged, you will find him guilty; if you have any doubt about it you will find him not guilty. I will remind you of what I have said to you at the outset, that you have to be satisfied, not only that he was guilty of gross and culpable negligence, but that he caused or accelerated her death." . . . "That is the whole of the case. If you are satisfied that either in the way he delivered the child or in the way he acted afterwards he acted with gross negligence and thereby caused her death, you will find him guilty; if you are not satisfied you must acquit him on that part of the case. If you think after the womb had come away his conduct and neglect of her substantially accelerated the date of her death—if you are quite satisfied of that, you will convict him on that part of the case. If you feel any reasonable doubt on either theory you will give him the benefit of the doubt and acquit him."

If the words gross, wicked, and culpable are put aside, this summing-up amounts to a direction to the jury that they must draw the line between mistake or error of judgment on the one hand, and carelessness or incompetence on the other hand. If there was only mistake or error of judgment there is no liability, but if there was any falling short of a fair average degree of care or competence, then there is liability. Such a direction would be complete and accurate on the trial of an action for damages for negligence. It is not adequate on the trial of an indictment for manslaughter. There is, however, in the passages dealing with the evidence, a frequent use of some of the adjectives which have always been employed in explaining criminal negligence to a jury. For this reason, looking at the summing-up as a whole, this Court is of the opinion that there was no misdirection. It is, nevertheless, most desirable that in trials for manslaughter by negligence it should be impressed on the jury that the issue they have to try is not negligence or no negligence, but felony or no felony. It is desirable that, as far as possible, the explanation of criminal negligence to a jury should not be a mere question of epithets. It is, in a sense, a question of degree, and it is for the jury to draw the line, but there is a difference in kind between the negligence which gives a right to compensation and the negligence which is a crime.

The learned Judge was invited to withdraw the first and second charges of negligence from the jury on the ground that there was no evidence to support them. He declined to do so, and left all three to the jury with the instruction that they could convict on all or any of them. The jury returned a general verdict of guilty. In the opinion of this Court there was no evidence to support the first charge, based on the manner in which the accused performed the operation of version. A strong defence was presented on the third charge, and it may well be that the jury relied largely on the first and second charges. If the first had been withdrawn from them, it is impossible to say that they would certainly have convicted. For this reason the conviction could not stand.

VICTORIA HOSPITAL, SOUTHEND-ON-SEA.—In his annual report Dr. C. Grant Pugh, medical officer of health of Southend-on-Sea, states that "the most serious problem from the health point of view confronting the inhabitants is the totally inadequate provision in the way of a general hospital due to the lack of financial support given to the Victoria Hospital." It is, he points out, impossible for a hospital with 64 beds and cots to meet the needs of a population exceeding 150,000, and largely increased by summer visitors. The hospital committee find it difficult to raise enough money to maintain even the existing "grotesquely inadequate" accommodation. He points out that unless the committee of the Victoria Hospital can produce a scheme for remedying the inadequacy, either the guardians or the town council will have to do so.

SLEEPING SICKNESS IN AFRICA.

LEAGUE OF NATIONS CONFERENCE.

SLEEPING sickness is a disease of great importance, both from the medical and the economic point of view. Intimately bound up with the problem it presents is that of the tsetse-fly, certain species of which act as vectors for the parasites causing the disease and which, being also the intermediate hosts of trypanosomes producing fatal disease in cattle and other domestic animals, play a most important part in retarding the development of many African colonies. If progress is to be made in combating the dangers of life in these colonies, a closer *rapprochement* between the governments of all the African territories in which sleeping sickness occurs is essential. Uniformity of records and coöperation at frontiers are among the most important administrative measures to be taken, and the powers of medical officers in affected areas must be greatly increased. The system of sanitary passports, largely in vogue throughout French Equatorial Africa and Belgian Congo, is undoubtedly a useful one and could with advantage be brought into more general operation.

The need for such measures is exemplified in the district where the South-Western part of the Bahr-el-Chazal Province of the Anglo-Egyptian Sudan is in contact both with French and Belgian territory, and also where the Southern Sudan meets the Nile Province of Uganda. The coming and going of infected natives have occasioned local outbreaks of the disease and given cause for grave anxiety. Apart from administrative measures, the further study of the causal agents of the disease, of the means whereby it is conveyed from man to man and from wild animals to man, and of measures of prevention and of treatment is urgently required. Even drugs like "Bayer 205" and tryparsamide have not yet provided a thoroughly satisfactory therapeutic agent, possessing a maximum trypanocidal efficiency with a minimum toxicity and endowed with powers of penetrating the cerebro-spinal system and slaying trypanosomes lodged in the brain substance. But even more important is the study of immunity, and it is with arrangements for the local study of this great problem that the conference held from May 19th to 22nd at the Colonial Office, London, under the auspices of the League of Nations, has been concerned.

This conference, to consider the possibility of sending a special International Commission into Equatorial Africa for the epidemiological study of sleeping sickness, and to arrange for active coöperation of the local sanitary authorities, was the outcome of a decision of the League of Nations to institute inquiries into the scourge of sleeping sickness in Africa, as a result of which an expert committee was appointed with Dr. Andrew Balfour as chairman. The recommendations of this committee were approved by the League Council at Rome in December, 1924. The conference held last week, under the chairmanship of Mr. W. G. Ormsby-Gore, M.P., Under-Secretary of State for the Colonies, was the subsequent step in the agenda. The representatives of the various European countries were: Great Britain: (In addition to the Chairman) Dr. A. G. Bagshawe and Dr. Andrew Balfour. Belgium: Prof. Campenhout, Director of the Public Health Service of the Belgian Colonial Office. France: Prof. Gustave Martin, formerly head of the Sleeping Sickness Mission in Equatorial Africa, Prof. E. Brumpt, and Prof. Mesnil. Italy: Prof. Lanfranchi and Prof. Alessandrini. Portugal: Mr. Aires Kopke. Spain: Dr. Villa and Dr. Rocafert.

CHAIRMAN'S ADDRESS.

At the opening session of the conference, Mr. Ormsby-Gore, in welcoming the delegates, said that the subject which they were called upon to examine was of the greatest importance to the whole future of tropical Africa, and not least to the British Government who had such wide responsibilities in that area. The attention of informed public opinion in England, he continued, was prominently directed to this subject by the great outbreak of sleeping sickness in Uganda about 20 years ago, when the disease caused the deaths of more than 300,000 natives, or roughly one-tenth of the total population of the Protectorate. The campaign against this outbreak necessitated the clearing of the Sese Islands of Lake Victoria and other portions of Uganda of their entire human population. The disease, though less virulent in its incidence in Uganda, was to-day, however, still existent in that country and was a present problem in many other parts of the country, as the speaker had himself seen in the course of a recent extensive tour through Northern Rhodesia, Nyasaland, Tanganyika Territory, Uganda, and Kenya. The disease was also known in the Anglo-Egyptian Sudan and also to a less extent in the British Colonies in West Africa; in fact, wherever the tsetse-fly existed there was always a danger that the disease might become epidemic in character. The report from Northern Nigeria for 1923 revealed an epidemic outbreak of a severe form of sleeping sickness in an area where its record had not been previously noted.

Turning from the British Colonies, there was probably no part of Africa to-day where the problem was more serious than in the Belgian and French Congo; very large areas were marked as sleeping sickness areas on the maps drawn up by the Expert Committee appointed by the Health Committee of the League of Nations in 1922. The French Colonies in West Africa were also affected, and one of the most important pieces of work in connexion with the problem had been effected in the Portuguese island of Principe. The disease to-day was the cause of grave anxiety in the Spanish island of Fernando Po. The speaker pointed out that the tsetse-fly occurred in belts of varying sizes practically throughout tropical Africa from Senegal on the north-west to Zululand on the south-east. Areas of special intensity were found in practically all the intervening countries. At least one-half of the total area of the mandated territory of Tanganyika was under tsetse-fly, and within its borders were found many of the principal varieties of this pest.

The Present Problem.

Mr. Ormsby-Gore then outlined the steps which had been taken to combat sleeping sickness, commencing with the International Conference held in London in 1907. Since that time, he continued, much fresh knowledge had been accumulated by workers of different nations, one of the most important discoveries being that made by Dr. Kleine, that a developmental cycle of trypanosome occurred in the tsetse-fly. Investigations of French, German, Belgian, and American scientists had been devoted towards the treatment and prevention of the disease by the use of drugs. Even so our present knowledge, said the speaker, was far from complete and further research even on these limited aspects of the problem was needed. The problem was, however, not confined to the medical treatment of the disease but, in the Chairman's words, "faced as we are by the vast extent of the infested regions, the difficulties presented by Nature and by our having to deal with the untutored and unclad natives and the prohibitive cost of introducing any large number of specially trained Europeans into tropical Africa, with its immense transport difficulties, our efforts have been often ineffective."

To free Africa from sleeping sickness, he continued, we required the services of entomologists, protozoologists, veterinary and medical scientists, and men of administrative and zoological experience. We needed not only the brain of the scientist and the work of the laboratory, but also that of the trained native administrator to apply the knowledge once it was obtained. In this country we were particularly pleased that the League of Nations had taken up this question, and we were glad to learn of the interest which was being displayed by the Rockefeller Institute and other bodies in America in this problem.

RECOMMENDATIONS OF THE CONFERENCE.

As the result of the discussions held during the session of the conference, the delegates unanimously decided to make to the Council of the League of Nations and to their respective Governments the recommendations which we give below in abstract. They read as follows:—

Administrative Measures.

In order to ascertain what zones are affected, the prevalence and distribution of tsetse-fly, the migration and movements of the populations, and the different methods of control adopted in various countries, the conference recommends:—

1. That facilities should be afforded for periodic official conferences between administrative and medical officers in charge of the campaign against sleeping sickness on both sides of the boundaries between infected countries.

2. That special agreements be concluded between local administrations for rapid and regular interchange of all epidemiological intelligence and information regarding measures for control on both sides of the frontier.

3. That the recommendations of the chief of the medical service or his representative in sleeping sickness areas should be binding on the local administrations.

4. That a medical and health service be provided, including both medical officers and auxiliary staff, proportionate to the number of the population infected and the extent of the district to be inspected; adequate administrative staffs should be available in these regions and particularly in the neighbourhood of frontiers.

5. That in sleeping sickness areas the medical officers should be given magisterial powers regarding the application of all measures in connexion with the preventive campaign; that the system of sanitary passports for the native population in the affected areas should, where practicable, be adopted as an effective means of reducing inter-frontier traffic to a minimum, and that all information available regarding sanitary passports should be collected and the League of Nations Experts Committee requested to prepare a draft sanitary passport.

The conference wishes to emphasise more particularly the necessity of a uniform method of recording statistics relating to morbidity and mortality of sleeping sickness as well as a uniform method of preparing maps showing the prevalence of the disease, the sites of the sleeping sickness camps, sectors of prophylaxis, and the distribution of the various species of glossinæ. For this purpose the conference recommends:—

1. That the Experts Committee should study this question and present a recommendation to the Health Committee of the League of Nations for submission to the Governments concerned, including a uniform method of laboratory diagnosis.

2. That wherever practicable measures for the establishment of areas freed from populations should be taken on both sides of the frontier in order to facilitate the control of native traffic.

Special Studies and Investigations.

The conference, having examined the proposals contained in the two reports of the League of Nations Experts Committee on Sleeping Sickness in Equatorial Africa, as well as the recommendations made by the Committee during the conference, recommends that an international commission should be entrusted with the duty of investigating the problems referred to under—

(1) The existence of any human immunity against trypanosomiasis, the nature of such immunity, and the factors which determine it; (3) the functions of wild and domestic animals as breeding-grounds for the virus; (4) the relations between trypanosomiasis gambiensis and trypanosomiasis rhodesiensis; (5) the testing of precipitins applied to the blood in the alimentary canal of the tsetse-fly;

of the recommendations of the Experts Committee.

Investigations on the subject referred to above are being already carried out in the institutes of the several African countries, and the conference believes that it would be of the greatest importance if the methods of research and the technique of investigation were coördinated as between the various institutes, and that an international commission formed of representatives of the various national institutes would find valuable opportunities for scientific collaboration.

Research in Uganda.

The conference, after having considered other territories, is of opinion that Uganda and the regions in the neighbourhood of Lake Victoria represent the territory most suited for the study of the problems selected. Most valuable research work has been carried out for several years at the laboratories at Entebbe, under the competent and distinguished leadership of Dr. Lyndhurst Duke. In addition, extensive field work has been carried out by the medical services of Uganda and by the administration of the adjoining territory of Tanganyika. The conference recommends therefore:—

1. That an inquiry be made as to whether the Government of Uganda would be prepared to offer the hospitality of their laboratories at Entebbe for the work of such a Commission.

2. That the Commission be placed under the presidence and control of Dr. Duke and that it should consist of a few workers from the institutes of African Powers. The conference also believes that the collaboration of Dr. K. Kleine will be of great service to the Commission. The hospitality of the Entebbe Institute will be invited for a period of 12 months, at the end of which the Commission will present a special report to the League of Nations Experts Committee.

The Commission would begin by studying, under Dr. Duke's guidance and control, the research methods and laboratory technique at the Entebbe Institute and its field laboratories, as well as the field work and measures taken against sleeping sickness in the Protectorate of Uganda and the infected districts of Tanganyika. The field work in regard to the control of the tsetse-fly undertaken by Mr. Swynnerton in the Tanganyika territory will also be studied. The Commission will then engage in joint laboratory investigations as to the methods of work which are most suited for research into the several problems referred to it by this conference.

The conference estimates that the expenditure would amount to some £10,000, including salaries of local scientific personnel, the foreign members and laboratory assistants, as well as travelling and other general expenditure. The conference decides to ask delegates to recommend to their Governments to contribute to a common pool for meeting part of this expenditure, while it is anticipated that the Governments will continue to pay the salaries of the medical officers and other workers who take part in the work of the Commission. The conference recommends strongly that the Governments should obtain the allocation of a credit of at least £3000 in the budget of the Health Organisation of the League of Nations for 1926, and it hopes that funds may also be provided by the scientific research organisations of certain countries.

THE WORK OF THE NEW COMMISSION.

It is suggested that the Commission might conveniently meet at Entebbe at the end of December, 1925, or in January, 1926, its mandate terminating on Dec. 31st, 1926. The limitation of the period of work for the Commission at Entebbe has doubtless been deliberate. The method of study of sleeping sickness problems by means of an International Commission is quite a new idea so far as tropical Africa is concerned, and it is therefore frankly of an experimental nature. In any case the association of a number of workers of different nationalities for the elucidation of difficult and intricate problems is perhaps more likely to be profitable if their deliberations are not allowed to extend over too long a period.

The choice of Entebbe, Uganda, for the place of investigation will be welcomed, for not only is it a place where immunity can be studied with advantage but where attention can be directed to certain other problems urgently requiring solution. These are: (1) The relation of wild and domestic animals to the disease in man—in other words, the rôle they may play as reservoirs of infection, as modifying strains of human trypanosomes, as affording pabulum for the tsetse-fly. (2) The vexed question as to how *T. gambiense* stands in relation to *T. rhodesiense*. (3) The feeding habits of glossinæ as determined by the application of precipitin tests to the blood in the alimentary canal of the fly. In Uganda, moreover, sleeping sickness has apparently been mastered by the removal on a large scale of an infected population from the endemic areas and repopulation of

the abandoned areas is now proceeding. Cases of human sleeping sickness may, however, be found not far away in Kavirondo, while the large scale preventive measures against the tsetse-fly, organised by Mr. Swynnerton, can be inspected by the Commission without travelling any great distance. Dr. Lyndhurst Duke, the Chairman of the Commission, is one of the foremost British workers in this field; he and his colleagues Dr. Lavier, Dr. Van Hoof, and Dr. Kleine, with a biochemist and an entomologist still to be appointed, will start organising their work as soon as those recommendations are approved by the Governments and by the Council of the League.

SALARIES IN THE PUBLIC HEALTH SERVICE.

THE British Medical Association has just issued a circular letter to local sanitary and other authorities, containing a schedule of minimum commencing salaries recommended for their adoption as a standard. The scale is the outcome of protracted effort by the Society of Medical Officers of Health with the assistance of the B.M.A., to obtain a standard of salary sufficient to attract men and women with good qualifications into the public health service and to retain their services there. Ominous signs have of late not been wanting, the letter states, that the right kind of men and women are not being attracted to the service, and that some of the most suitable officers in it are seeking ways and means of getting out. A draft scale of salaries was drawn up by a committee of the Society of M.O.H.'s in November, 1919, and was fully discussed at the annual meeting of the B.M.A. at Portsmouth in July, 1923, when the schedule was printed in full in THE LANCET (1923, ii., 187). A number of concessions have since been made, and now the Ministry of Health regards the scale as reasonable, and it has been commended as a useful guide in fixing salaries by the Association of Municipal Corporations. Agreement is not yet complete, and there are notable lacunæ, but it is a fact that the scale salary has already been offered without question by a number of authorities who had awaited the result of negotiations before filling vacancies.

Scale of Minimum Commencing Salaries for Whole-time Chief Medical Officers of Health and Medical Officers of Other Grades Recommended for Adoption as a Standard by Local Authorities.

RESIDENT MEDICAL OFFICERS.

Minimum commencing salaries per annum, £350 plus emoluments.

Definition: These are medical officers employed in hospitals, sanatoria, or other institutions without the responsibility for the work of other medical officers.

Note.—Where the appointing authority limits the appointment to a term not exceeding one year and not renewable, this salary shall not apply, nor shall it apply to officers without previous professional experience.

MEDICAL OFFICERS EMPLOYED IN DEPARTMENTS.

(Working directly under a senior medical officer.)

Minimum commencing salaries per annum, £600.

Definition: These are medical officers without responsibility for the work of other medical officers, but who shall have had at least three years' experience in the practice of their profession subsequent to obtaining a registrable qualification. One only of these years may be spent in the whole-time service of a local authority on a probationary basis at a lower salary than the minimum of £600 per annum. The salary during such probationary service shall be at the rate of not less than £500 per annum.

DEPUTY OR CHIEF ASSISTANT MEDICAL OFFICER.

(Hospitals, sanatoria, or other institutions or departments.)

Minimum commencing salaries per annum, a salary equal to 60 per cent. of salary of medical superintendent or senior medical officer in charge, but not less than the salary of a medical officer employed in a department.

SENIOR MEDICAL OFFICERS

(not being medical officers of health) in charge of services or departments—e.g., port sanitation, school medical service, tuberculosis, mental deficiency, maternity and child welfare, venereal disease, or any other similar service or department or combination thereof—and medical superintendents of hospitals, sanatoria, or other institutions.

Minimum commencing salaries per annum, £750 to £1100 according to responsibility and scope of department, regard being had to the relation of the officer's salary to that of the medical officer of health.

CHIEF MEDICAL OFFICERS OF HEALTH.

(Outside London.)

A = County boroughs, boroughs, urban and rural districts, and combined districts. B = County councils.

Population.	Minimum commencing salaries per annum.	
	A.	B.
	£	£
Not exceeding 50,000 ..	800– 900	—
,, ,, 75,000 ..	900–1000	800– 900
,, ,, 100,000 ..	1000–1100	900–1000
,, ,, 150,000 ..	1100–1200	1000–1100
,, ,, 250,000 ..	1200–1400	1100–1200
,, ,, 500,000 ..	1400–1600	1200–1400
,, ,, 750,000 ..	1600–1800	1400–1600
Exceeding 750,000 ..	1800	1600–1800

CHIEF MEDICAL OFFICERS OF HEALTH.

(Metropolitan boroughs.)

Population.	Minimum commencing salaries per annum.
	£
Not exceeding 150,000	1000–1200
,, ,, 250,000	1100–1400
Exceeding 250,000	1400–1800

Notes.

1. In cases where a local authority appoints a deputy or assistant medical officer of health the salary should bear an appropriate relation to the salary of the chief medical officer of health and the other medical officers in the service of the authority. By deputy or assistant medical officer of health is meant a medical officer duly appointed as deputy or assistant M.O.H. by the authority to assist the medical officer of health in the general administration of the health department and the carrying out of the various Acts, by-laws, orders, rules, regulations, &c., required to be, or usually administered by the medical officer of health; the title deputy or assistant medical officer of health to be limited to medical officers carrying out these general duties.

2. Where in the case of a particular appointment, whether of a medical officer of health or a senior medical officer, the local authority assigns a figure in the scale which the British Medical Association thinks inappropriate the Ministry of Health has promised to use its good offices by arranging for a joint discussion between the parties concerned at the Ministry.

3. Population means population at the latest annual report of the Registrar-General.

Conditions Applicable to All Appointments.

(*a*) The salaries to be fixed are consolidated salaries inclusive of bonus.

(*b*) There will be a periodical review of salaries by the local authorities and suitable increments of salary will be given for proved ability and satisfactory service.

(*c*) Travelling expenses and other reasonable expenses properly incurred in the performance of the duties will be paid in addition to salary.

(*d*) No existing officer is to be prejudicially affected.

PORT MEDICAL OFFICERS.

(Directly responsible to a port sanitary authority.)

Minimum commencing salary per annum, £800.

Suggested Salaries for Combined Posts, &c.

Where two or more districts combine to appoint a medical officer of health to serve under a joint committee, such medical officer of health being permitted to accept part-time duties—e.g., as tuberculosis officer, school medical officer, &c.—under the county council, the combined remuneration should be not less than the minimum commencing salary of a whole-time M.O.H., as indicated by the population of the combined areas.

Where an assistant M.O. under a county council is allowed to become a district M.O.H. for a definite proportion

tion of his time—e.g., one half-day per week—such assistant M.O. should receive remuneration at the rate of £80 per annum for each half-day per week allocated for his duties as district M.O.H., and that his salary as assistant M.O. under the county council should be reduced by one-eleventh for each half-day per week that he is serving as district M.O.H.

The scale deals only with minimum salaries, but the view of the Association is that increment of salary should be at the rate of 5 per cent. per annum (after three years satisfactory service) rising to not less than 25 per cent. above the commencing salary. In placing existing officers in accordance with the scale, it is assumed that years of service and merit will receive recognition. The Association refuses to recognise any differentiation of salary on account of sex.

Public Health Services.

SCHOOL MEDICAL SERVICE.

STATISTICS from three school medical reports for 1924 are given in the following table :—

Name of district.	No. on roll.	Av. elem. school attendance.	No. examined in "code" groups.	Special examinations or inspections.	Percentage of children found on routine examination requiring treatment.*
Shrewsbury	4209	3756	1147	7823	7·5
Radcliffe ..	2978	2668	917	2267	24·4
Guildford..	2998	2711	953	268	15·5

* Excluding cleanliness and dental defects.

Shrewsbury.

Dr. Gordon Smith, in his report to the borough council of Shrewsbury, points out the insanitary condition of many of the schools, some of which have been condemned by H.M. inspector. The educational, no less than the physical, well-being of children is so dependent on good environmental conditions that the quick remedying of insanitary conditions in all schools would be a sound investment on the part of all local educational authorities. The small percentage of defects found (7·5) is explained as being due to the work of the child welfare scheme being well carried out and by the existence of an efficient school clinic, where the treatment is carried out by the school medical officer in addition to his duties as M.O.H. Dr. Smith does not disguise the considerable difficulty he has in carrying out unassisted his ever-increasing duties.

A feature of the report is the number of statistical tables showing the incidence of defects amongst the various age-groups. In the malnutrition table it is seen that 7·4 per cent. of the 8-year old children are below normal as against 12·5 per cent. of the entrants and 17·8 per cent. of the 12-year olds. These figures indicate rather a high percentage of poor nutrition. The lessened incidence in the 8-year old group is interesting as it is at variance with most findings at this age. "Many of these badly nourished children are seen at the clinic and are difficult to deal with. Some are obviously underfed. It would be a great advantage if suitable cases could be supplied with a daily ration of milk or cod-liver oil. . . . Many of the teachers would be willing to issue the milk at schools. . . ." The local education authority would avoid reproach by putting into operation the Education (Provision of Meals) Acts, 1906–14.

Dental defects were found in 64·3 per cent. of children at routine medical inspections while only 29·8 per cent. were found by the school dentist at his inspections—from these figures it would appear that the dentist picks out only the worst cases for treatment. The percentage of parents present at routine examinations (50 per cent.) is not high and would indicate rather a lack of interest in the good work.

Radcliffe.

Dr. J. M. Gibson's well-written report presents many points of interest and much care has been taken in its compilation. The various public health services are now coördinated with the school medical service, and the health visitor supervises and keeps records of debilitated children under school age and when necessary treatment is given at the school clinic. The difficulty of efficient school ventilation is commented on and the importance of fresh moving air is emphasised, as is the necessity for well-lighted, bright, and clean rooms. The figures for uncleanliness of the head and body show a steady improvement from 590 in 1921 to 185 in 1924. The percentage of visual defects in not high—4·2 per cent. were referred for refraction, and it is satisfactory to note that 101 cases out of 107 recommended for glasses obtained them.

Tables are given showing the monthly incidence of scarlet fever and diphtheria in the various schools and one showing the weekly incidence and school distribution of measles during September–December, 1924. In his pertinent observations on infectious disease, Dr. Gibson concludes that, in such a district as Radcliffe, school closure has no effect in preventing the spread of infection; on the contrary, measles can be more effectively controlled and the children's interests better safeguarded by keeping the schools open. He rightly says that the help of the teachers is essential, and is readily given, for the early recognition and consequent isolation of suspicious cases, especially as parents are not acquainted with the early signs of the disease. There are no facilities for open-air education in the district, but in many places open-air classes are held in elementary schools with excellent results.

In a special inquiry it was found that 12 children had a mental retardation of two to three years, while 27 had a mental age (Binet-Simon) of more than three years lower than their respective chronological years. There would thus appear to be sufficient candidates for a special school; pending the formation of such a school many of these children might benefit from instruction in special backward classes in the elementary schools.

Dr. Gibson records his thanks for the cordial and valued coöperation of the local medical practitioners with the school medical staff.

Guildford.

In the relatively small area of the borough of Guildford, Dr. R. W. C. Pierce, the S.M.O., is fortunate in having Dr. A. Pimm as medical inspector to assist him in his school work. From the above table it will be seen that there were comparatively few special examinations (40) and re-inspections (228). Special cases are usually referred by parents, teachers, nurses, or school attendance officers, and constitute an important feature of school work, as most of the children so referred are either suffering, or suspected to be suffering, from some definite illness, and the medical examination of such children gives confidence and encouragement to the parents. One such case successfully treated often does more good than the examining of many routine healthy children. No provision exists for open-air education, but teachers are urged to hold playground classes for debilitated anæmic children.

The medical inspector apparently only recommends for treatment the very worst cases of dental caries, as only 61 were so referred out of a total of 1221 examined. Whereas the dentist referred 1040 out of a total of 1365 inspected, and of those referred for treatment by the dentist 688 obtained it. The number of exceptional children is too small to make the provision of special schools readily feasible. Five such children are maintained in outside institutions, but some special classes might be organised for the

education of 18 mentally deficient children who are at present in elementary schools.

The school nurses seem to be hard-worked and a great deal of their time is spent in general welfare work which has the incidental advantage of gaining for them and their work the sympathy of the parents. Mention is made of valuable voluntary workers, and it is hoped that their numbers will be increased or some other help obtained, for it is scarcely desirable that such work should fall upon the teachers though their interest is essential to the success of the medical work.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED MAY 16TH, 1925.

Notifications.—The following cases of infectious disease were notified during the week, namely:—Small-pox, 157; scarlet fever, 1702; diphtheria, 807; enteric fever, 56; pneumonia, 963; puerperal fever, 59; cerebro-spinal fever, 9; acute poliomyelitis, 4; acute polioencephalitis, 1; encephalitis lethargica, 70; dysentery, 4; ophthalmia neonatorum, 106. There were no cases of cholera, plague, or typhus fever notified during the week. The number of small-pox cases showed a decrease of 5 from the number for the preceding week.

Deaths.—In the aggregate of great towns, including London, there were 3 deaths from enteric fever, 83 from measles, 12 from scarlet fever, 88 from whooping-cough, 31 from diphtheria, and 58 from influenza, as compared with 68, 100, 139, and 162 in the four preceding weeks. In London itself the deaths from influenza numbered 4, from whooping-cough 21, and from diphtheria 4.

Obituary.

NORMAN VEITCH CUNNINGHAM LOTHIAN, *M.C.*, M.B., CH.B. GLASG., D.P.H., D.T.M. & H. CAMB.

WHILE travelling from Beit Mari to Beirut in Syria on May 22nd Dr. Norman V. C. Lothian, epidemiologist of the Health Section of the League of Nations and member of the League of Nations Malaria Committee, was killed as the result of a motor-car accident, which also caused the death of two other members of the committee, Dr. Samuel Darling, U.S.A., and Mlle. Besson, France.

Dr. Lothian graduated in Arts, Science, and Medicine at the University of Glasgow, obtaining the M.B., Ch.B. in 1912. He continued his studies in London and New York, later in 1919 gaining the Cambridge Diploma of Public Health and the Diploma of Tropical Medicine and Hygiene. On qualifying in medicine he joined the Royal Army Medical Corps, where he specialised in hygiene, attaining the rank of major. His many papers in the *Journal of the Royal Army Medical Corps* bear evidence to his ability and to the readiness of his seniors to profit by it. Thus he was asked to prepare "a historical inquiry into the load carried by the soldier of various periods,"[1] when he showed that the soldier should not be asked to carry more than 33 per cent. of his weight; the mule carries 32 and the horse 28 per cent. only, and weights over 33 per cent. destroy the marching power of the soldier and lose battles. Other papers include: Purification of Water on Field Service (Trans. Brussels Internat. Conf. of Military Surgeons), Note on the Rate of Marching and the Expenditure of Energy in Man (with Cathcart and Greenwood), *Journal R.A.M.C.*, 1920; the Activated Sludge Method of Sewage Disposal, ibid., 1921; Chlorination of Water in Galvanised Iron Vessels (with A. R. Ward), ibid., 1922.

For the past two years he had been associated with the League of Nations, and from the British member of the Health Committee of the League we have received the following appreciation: "The tragic death of Dr. Norman Lothian will come as a great shock to the little band of medical officers of different nationalities who form the Health Section of the Secretariat of the League of Nations at Geneva. Dr. L. Rajchman and his colleagues had gained some two years' experience of Dr. Lothian's great capacity and untiring industry. These qualities, combined with a most attractive personality, had gained for him the highest regard and respect, not only of his colleagues on the Secretariat, but also in special measure of the members of the Health Committee and the public health officers of the many countries which it was his duty to visit. Dr. Lothian travelled extensively with the special missions of the League, particularly that on malaria, of which he was secretary, and for which he had quite recently drafted some invaluable reports. He accompanied the "interchange courses" of foreign public health officers which are now a regular part of the programme of the Health Organisation at Geneva. Wherever he went he showed the same high ideal of duty and industry; he was ready for every need or difficulty, and his modesty and charm endeared him to all. With this aptitude and with the quite exceptional experience of sanitary administrative measures and of the persons responsible for them in different countries, a great future had seemed to be before him in the sphere of international public health."

[1] Report on Health of the Army for 1921, p. 14.

JOHN THOMAS GRAHAM, M.D., C.M. GLASG., M.R.C.S. ENG.

Dr. John T. Graham, who for 35 years was medical officer of health for Perthshire, died at his residence in Perth on May 20th, after a short and sudden illness. A son of the Rev. Dr. Robert Graham, he was born at Abernyte in the Carse of Gowrie in 1853. He studied medicine at Glasgow University and at St. Bartholomew's Hospital, London, qualifying M.B., C.M. Glasg. in 1874 and M.R.C.S. Eng. the following year. In 1878 he obtained the M.D. of Glasgow. Dr. Graham began his professional career in general practice in Perth, and in 1890 was appointed first medical officer of health for the county on the passing of the County Councils Act. He was also chief tuberculosis officer for Perthshire.

Dr. Graham was well known throughout the county, where his abilities as a public health administrator, together with the tact he always showed in carrying out his duties, won for him the confidence and respect of fellow medical practitioners and public officials. Dr. Graham showed a keen interest in public affairs, and at the time of his death was chairman of the Perth Sick Poor Nursing Association. Apart from medical and public work, he devoted much of his spare time to the study of mechanics and electricity.

An old friend and colleague, "R.S.," sends us the following appreciation: "When Dr. Graham began his professional life in the late seventies specialism was only in its infancy, but as a member of the visiting staff of the Perth Royal Infirmary he had opportunities of developing his surgical instincts, and his colleagues learnt to trust both his judgment and manual dexterity. He was a good operator and would probably have achieved distinction had not circumstances diverted his talents in another direction. Abandoning general practice, he became full-time medical officer of health, although he relinquished with regret the surgical and obstetrical work in which he had established an enviable record. The change was probably a wise one, since more than one severe illness had somewhat impaired a powerful physique. To his new duties he brought the same devotion and good sense displayed in his former sphere. So passes away one of the old school, a fine type of the practitioner. As a friend and counsellor he will be greatly missed."

Dr. Graham is survived by his widow and two sons, one of whom is in the medical profession.

THE trainees and families at the Devon and Cornwall Ex-Service (Tuberculosis) Colony, Plymouth, presented a gold-mounted fountain pen to Dr. F. G. Bushnell on May 21st on the severance of his association with Efford Camp.

THE GENERAL MEDICAL COUNCIL.

SUMMER SESSION.

PRESIDENT'S ADDRESS.

THE summer session of the General Medical Council was opened on May 26th, when Sir DONALD MACALISTER, the President, delivered his address.

He began by paying a tribute to the late Sir Clifford Allbutt as a leader in many departments of medicine, pre-eminent in his mastery alike of its literature, its science, and its practice, and by offering the Council's good wishes to Sir Humphry Rolleston, his successor in the Cambridge chair. He also recalled the valuable work, as inspector of qualifying examinations in medicine, of the late Dr. H. H. Tooth, whose recent death left a memory of assiduous and unselfish labour for worthy ends. They would, he said, miss the presence of Mr. E. B. Turner, whose vigorous fluency of address and intimate acquaintance with divers sides of medical life and practice had often given colour to grey debates. He welcomed his successor in the English representation, Dr. H. B. Brackenbury, an experienced medical statesman of approved loyalty and wisdom.

Medical Education and Registration in the Irish Free State.

In February last, Sir Donald MacAlister continued, an Act was passed by the Free State Legislature, which in effect provides that in Southern Ireland the Council's constitution and powers, and the powers and responsibilities of its universities and corporations, shall, so long as the Act is operative, continue to be regulated by the Medical Acts, as they were regulated before the Irish Free State was established. It is, of course, open to the Free State, if it thinks fit, to renew the Act for a further period before its expiry in February, 1926. No similar Act has been passed relating to the dental profession, and accordingly the jurisdiction of the Council and of the Dental Board over dentists in the Free State has come to an end. I have not learned that any local regulation of the dental profession has been established in its stead. It still remains, for the complete validation of the Council's powers, and of its acts in the interim period, that complementary legislation should be adopted in this country. We are informed by the Privy Council that the necessary Bill has been drafted and will shortly be laid before Parliament.

Medical Reciprocity with Italy.

The question of re-establishing reciprocity, interrupted by recent legislation to the detriment of British medical men desirous of practising in that country, has been the subject of much correspondence during the recess. At one time it appeared that, owing to the unexplained delay of the Italian authorities in concluding the "special agreement" required by the new law, it would be necessary to rescind the Order in Council which applies the Medical Act of 1886 to Italy. But an intimation by the Executive Committee to that effect seems to have had a useful result; for we have received a telegram sent by H.M. Ambassador at Rome, stating that the agreement with Italy was signed on Thursday last, May 21st, and that the signed text was on its way to London.

Dominion Reciprocity.

The Province of Saskatchewan, whose recent enactment has made it impossible for practitioners on the British Register to obtain provincial registration, while Saskatchewan practitioners still retain the privilege of registration upon the Colonial List and so of practising in this country and in British possessions overseas, has sent a reply expressing the views of its medical council. It is to the effect that there is no desire to retain British reciprocity if that involves inter-provincial reciprocity, and reciprocity with countries other than Great Britain. The Executive Committee have therefore felt constrained to represent to the Lord President of the Council that the conditions under which the Order in Council of 1915 was made have ceased to be observed by Saskatchewan, and that accordingly it is just and expedient that the Order should be forthwith rescinded.

Correspondence with the Province of New Brunswick, where a somewhat similar question has been raised, appears to indicate that inter-provincial differences and misunderstandings are responsible for the "current discontents." The local authorities, however, plead for further consideration of the question, and deprecate the rescission of the reciprocity Order until that consideration has been given. The Executive Committee have no desire to precipitate matters with the Province, and have given instructions for a reply to the Provincial authorities, which shall make it clear that we agree in our desire that reciprocity with the Dominion as a whole should take the place of the present agreements with the provinces separately, so soon as the provisions of the Canadian laws render this practicable. Dominion reciprocity has long been the aim of the Council. It would bring with it a greater uniformity of provincial standards, and the elimination of local difficulties between neighbouring provinces, with which the Council cannot effectively concern itself.

India.—Channel Islands.

In India the progress towards a satisfactory system of medical instruction and examination in the Universities of Bombay and Lucknow, as reported by the official inspector, has justified the Executive Committee in continuing the conditional recognition of their degrees until June 30th, 1926. The Committee have not yet found any grounds for reconsidering the position of the University of Calcutta, whose degrees are not now registrable in the Colonial List.

Those ancient domains of the Crown, Jersey and Guernsey, have, by a new Medical Act, dated March 10th, 1925, brought their law into harmony with that of the adjacent islands of Great Britain and Ireland by requiring that practitioners, to be legally qualified, must be registered in the Medical Register. They have, moreover, set these islands a good example by prohibiting, under penalty, any person who is not legally qualified from practising medicine or surgery.

Pharmacopœial Conference.

The International Conference on the Unification of Pharmacopœial Formulæ is to be held in Brussels in September. The Government will be represented by four delegates, of whom our colleague, Sir Nestor Tirard, is one. I learn with gratification that he has been asked by the Government to act as chairman of the British Delegation. The Government has adopted the reserves regarding the subjects to be discussed, and the conclusions that may be reached, which were suggested by the Pharmacopœia Committee.

Dental Examinations.

The Dental Education and Examination Committee will present a report on the inspection by Mr. J. Howard Mummery, C.B.E., of the qualifying examinations in dentistry and dental surgery held during the past two years. It is good to learn that all the examinations have been reported "sufficient." In certain instances the inspector has made suggestions towards improvement in matters of detail. These have been communicated to the several examining bodies, and it is reported by the inspector that they have been accepted, and in some cases are already in operation.

Number of Medical Students.

This time last year, Sir Donald MacAlister continued, I commented on the fall in the number of medical students registered—namely, from 1833 in 1922 to 545 in 1923. The sudden decline I thought to be more apparent than real, attributing it to the recent introduction of a pre-registration test in elementary physics

and chemistry. This test many students would not pass, and so could not register, until the end of their first term, at least, after leaving the secondary schools. The explanation would seem to be sound, for in 1924 the registrations were nearly doubled, reaching 1043 by the end of the year. As the working of the new regulation is better understood in the schools, and as the general and scientific education of intending medical students is brought up to the higher standard now required, there is little doubt that the number of qualified entrants on the medical curriculum will approach the pre-war figure of 1300 or 1400, a number sufficient to supply the needs of the country for qualified practitioners.

The total number of new registrations in the Home List of the Medical Register in 1924 was about 2566, or about 330 more than in the previous year. This increase reflects the very large entry of students in the years immediately following the close of the war. The steady decrease in that entry since 1919 will correspondingly reduce the additions to the ranks of the profession, and it is highly probable that in three or four years the annual increment to the Register will fall to pre-war proportions.

Finance.

As the income of the General and Branch Councils is mainly dependent on registration fees, it is not surprising that the receipts for the year have been considerably augmented. The expenditure has remained nearly stationary, and there is therefore a surplus on the total account of more than £7000. The treasurers have thus been able to provide for exceptional outlays on elections, inspections, and visitations, fresh issues of the British Pharmacopœia, the possible extension of the lease of the Council's buildings, the establishment of an orderly system of pensions for the office staff, &c., and also to lay up modest reserves for other irregularly recurring charges, without drawing on accumulated capital. These wise precautions will serve to stabilise the Council's finances for some time to come, even if the second half of the present decade is less prosperous than the first. We have no margin for lavish expenditure; but the careful husbandry of the Finance Committee will enable us to meet without hardship any expense that is really necessary for efficiency.

A Presidential Gift.

Before I conclude, said Sir Donald MacAlister, may I offer for the acceptance of the Council the decorated window, designed by Dr. Anning Bell, R.A., which, with the kind assent of the Executive Committee, I have ventured to instal temporarily behind this chair? While, from the material side, it may help to brighten the sombre tints of the urban landscape over the way, and shield you from the rare importunities of the western sun, I hope that from the symbolic side it may help to preserve the remembrance of those who have been honoured by your confidence as Presidents of the Council, including the latest and longest borne with, your devoted and grateful servant.

The adoption of the address was moved by Sir Isambard Owen, seconded by Sir Norman Walker, and was carried with acclamation. The Council then proceeded to the consideration of three penal cases reported by the Dental Board of the United Kingdom, and thereafter received reports from the Dental Education and Examination Committee, submitted by Sir James Hodsdon. After the election of Executive and Dental Committees, and of the Penal Cases Committee, the Council then considered six penal cases which had been adjourned at previous meetings.

DAVID ELDER INFIRMARY AT GOVAN.—Plans for the building of this infirmary have now been approved and its erection will shortly be begun. The late Mr. Alexander Elder, of Liverpool, bequeathed £100,000 for the purpose in memory of his father and mother.

Correspondence.

"Audi alteram partem."

EFFECT OF SODIUM THIOSULPHATE ON THE THERAPEUTIC POWER OF ARSENOBENZOL COMPOUNDS.

To the Editor of THE LANCET.

SIR,—In a discussion on the toxic effects of arsenobenzol compounds, which was held by the Medical Society for the Study of Venereal Diseases on April 24th (THE LANCET, May 2nd, p. 926), I took the opportunity of saying that I had been wrong in an opinion expressed in the "Medical Annual" for 1925 (p. 444) that the injection of sodium thiosulphate simultaneously with arsenobenzol compound might act as an antidote which would protect the spirochæte of syphilis as well as the patient's tissues.

After I had returned the proofs of my article in the "Medical Annual" I thought it advisable to put this surmise to the test, and asked Dr. H. H. Dale, F.R.S., to say if the mixture of "914" with sodium thiosulphate raised or lowered the therapeutic dose of arsenobenzol as tested by its effect in causing the disappearance of trypanosomes from the blood of experimental animals. Dr. Dale kindly permits me to quote from his letter to the effect that "so far as our experimental trials have proceeded, there is no indication that dissolving the neosalvarsan preparations, before injection, in a 2·5 solution of sodium sulphate has any deleterious effect on the therapeutic action of the particular preparation on trypanosomiasis in mice."

Acting on this, I asked Dr. P. A. Clements to ascertain in the V.D. Department at St. Thomas's Hospital if a solution of "914" in 0·6 g. sodium thiosulphate interfered with the effect of the arsenobenzol compound in causing the disappearance of spirochætes from the serum of syphilitic lesions. Dr. Clements's observations support Dr. Dale's experimental evidence in showing that the thiosulphate does not interfere with the therapeutic action of "914" in this respect.

I am, Sir, yours faithfully,

L. W. HARRISON.

Eccleston-square, S.W., May 23rd, 1925.

"ORIENTAL SORE IN A NEW CENTRE IN PALESTINE."

To the Editor of THE LANCET.

SIR,—The annotation in THE LANCET of May 16th (pp. 1040–1041) on this subject recalls to my mind many war memories, and also a possible explanation.

Artuf is a small village, inhabited mainly by Bulgarian Jews, situated at the entrance to one of the strategic passes to Jerusalem, where the Philistine plain abuts on the Judean hills. Before the war the old Turkish narrow-gauge Jerusalem-Jaffa Railway ran through the village. When we captured Southern Palestine in the winter of 1917 the broad-gauge railway from Egypt was pushed up rapidly until it reached Artuf in the spring of 1918. Owing to engineering difficulties, however, the old Turkish line had still to be used from Artuf to Jerusalem for some months before the broad gauge could be pushed on to the Holy City. During this period, therefore, Artuf suddenly blossomed forth from an obscure village into an important entrepôt, for all stores, ammunition, and supplies for Jerusalem and the 20th Corps, amounting to 600–1000 tons per diem, had to be manhandled from the broad to the narrow gauge at this point. Naturally, this necessitated a large supply of Egyptian Labour Corps and Camel Transport Corps labour, and the men of these corps had to be provided with camps in and around the village. In addition, sick and wounded coming down from Jerusalem,

mainly from the Jordan valley, had to be accommodated there until we could send a broad-gauge hospital train to evacuate them; and so a British casualty clearing station and an Egyptian detention hospital were stationed during this period at Artuf. Through these hospitals passed British and Egyptian sick and wounded from the Jordan valley, refugees from Amman and Es Salt across the Jordan, and Turkish prisoners of war.

A few cases of oriental sore are known to have been thus evacuated. Now, cutaneous leishmaniasis occurs endemically in Egypt, and considering the thousands of E.L.C. who mixed freely with the natives, and the presence of known cases in the hospitals, it would seem not unlikely that it was at this time (1918) the village became infected. A few months later the broad gauge was pushed on to Jerusalem, the hospitals and camps vanished, and Artuf once again became a mere wayside village; but probably in the interval the damage had been done. No one paid any attention to these people at that time. There was no resident doctor. The incubation period of oriental sore is sometimes as long as 15 months. The disease is not a dangerous one. It has a tendency to spontaneous cure, and it is quite likely that the condition has been overlooked until recently. That, I believe, is the real story of the outbreak.

I am, Sir, yours faithfully,

J. JOHNSTON ABRAHAM,
Formerly A.D.M.S. Lines of Communication, Egyptian Expeditionary Force.

Harley-street, W., May 25th, 1925.

ULTRA-VIOLET LIGHT TREATMENT.

To the Editor of THE LANCET.

SIR,—Our knowledge of ultra-violet light therapy is rapidly improving and accumulating, considerably aided by such helpful communications as those of Dr. J. H. Sequeira and Dr. W. J. O'Donovan, and Dr. Howard Humphris, in your issue of May 2nd. I should like to emphasise certain aspects of this and other electrical treatments that impress me with their growing importance.

The first is the urgent need for organised research into the physical, physiological, and clinical effects of treatment by electricity. It is true that research work is already in hand on the effects of radium, X rays, and ultra-violet light, but I know of no team of workers in this country (including physicists and clinicians) whose reference is on the wider basis of electrical treatment as a whole. The recent striking advances in electro-physics have so stirred the imagination that many practitioners are now prepared to discuss the relative values of wave-lengths of 2000 and 3000 Angström units! This is symptomatic of a hunger for definite physical information, and it is the duty of the medical profession to see that this is provided without delay in as simple and accurate a form as possible. Already in America organised teams of clinicians and electro-physicists are at work.

The second conclusion that I have reached arises from the fact that I have obtained more rapid and impressive results from ultra-violet treatment during the last 18 months or two years than previously; and that owing to the recent dull and wet summers and winters we are suffering from a kind of famine of ultra-violet light. This is borne out by comparing the reactions of patients from London, the country, or abroad, and particularly striking is this difference in old people, just as if their storage capacity of sunlight were small and easily depleted or made up. If this conclusion is correct the need for increased efforts on behalf of smoke abatement becomes greater with each disappointing summer.

The third aspect to which I wish to draw attention is the great value of combining ultra-violet light with other forms of electrical treatment. Dr. Murray Levick has already described the favourable results he obtains in cases of poliomyelitis by using red rays and ultra-violet rays simultaneously. In such cases I have found that a combination of diathermy and ultra-violet treatment enhances the benefits derived from the diathermy current alone, great as these sometimes are.

Burns give surprisingly favourable results, particularly if the ultra-violet light falls on the burnt area and the surrounding skin, the former having a film of liquid paraffin over it. Paraffin, being fluorescent to ultra-violet waves, is therefore converting them to other wave-lengths, and an interpretation of fluorescence of this kind has recently been given by Prof. S. Russ and Dr. Peacock. Growth of the epithelium is more rapid, elastic, and healthy than by any other method I have seen, and dressings can be carried out with little or no pain. In fractures, especially where there is any reason to suspect delay in union, a combination of ultra-violet baths with the use of the direct current has invariably proved effective, since this method was instituted, two years ago. In cases of complete failure to unite, I have seen success achieved by this combination after many other attempts had failed.

Finally in cases of broncho-pneumonia and pneumonia the effect of combining diathermy and ultra-violet light is striking. I can confirm the American experience, and patients, both old and young, ask for their "hot pads" again and again. The effects observed are chiefly diminished restlessness and anxiety, a fall in the rate of respiration with greatly increased amplitude. A series of cases is now being collected which it is hoped will be ready for publication shortly. Combined research work would readily establish whether such apparently beneficial results were a matter of chance or genuine response to suitable electrical currents; and, if the latter, would undoubtedly indicate lines for technical physical improvement in apparatus.

I am, Sir, yours faithfully,

Portland-place, W., May 20th, 1925. C. B. HEALD.

CLEAN MILK IN HOSPITALS.

To the Editor of THE LANCET.

SIR,—In a letter just received from Dr. G. V. T. McMichael, medical officer of health for Paisley, I am informed that, following on a recent decision of the town council, only certified milk is now supplied to all the patients in the three municipal hospitals in Paisley—the fever hospital, the tuberculosis hospital, and the maternity and child welfare hospital. So far as I am aware, Paisley has therefore the distinction of taking the lead in establishing a much-needed reform. Reference may also appropriately be made to the model dairy established by Sir Robert Philip some years ago for the supply of clean milk to the tuberculosis hospital, as part of the general Edinburgh scheme for combating the disease, to the individual pioneer work (in Scotland) of Dr. E. P. Calder, of Stow, as a producer of clean milk on a commercial scale, and to the recent action of the County Council of East Lothian in securing clean milk for their sanatoriums.

For many years past a considerable amount of valuable work has been done on the subject of milk, notably at the National Research Institute for Dairying, under the direction of Dr. Stenhouse Williams, which has, however, largely remained outside the field of interest of the medical profession as a whole. It would appear that the time is now ripe for medical practitioners to interest themselves in this subject in a more intensive way than has so far prevailed. It is probably no exaggeration to say that, viewed from the necessary broad standpoint, there is no more pressing or vitally important question at the present time than the adequate provision throughout the country of a clean milk-supply.—I am, Sir, yours faithfully,

CHALMERS WATSON, M.D.

Edinburgh, May 20th, 1925.

POST-GRADUATE TEACHING IN MIDWIFERY.

To the Editor of THE LANCET.

SIR,—With reference to Dr. Margaret Balfour's letter on this subject in THE LANCET of last week, I should like to inform you that arrangements have now been made to provide practical post-graduate experience in midwifery at the Mothers' Hospital, Lower Clapton-road, E. The cost for a fortnight's course, including board and lodging, is 10 guineas, and includes delivery of normal cases, attendance at all operative work, at antenatal clinics, and at the rounds of the visiting staff in the wards. Special courses of operative midwifery and lectures will be arranged as desired at an extra fee. By the wish of the authorities of the hospital the course is confined to women post-graduates.

I am, Sir, yours faithfully,

FLORENCE E. BARRETT.

Devonshire-place, W., May 25th, 1925.

THE ALLEVIATION OF CHRONIC PROGRESSIVE DEAFNESS.

To the Editor of THE LANCET.

SIR,—Mr. Cathcart's article on the alleviation of chronic progressive deafness and persistent tinnitus by means of the Zund-Burguet method in your issue of May 9th is of great interest in so far as it applies to a class of disability usually considered to be incapable of amelioration.

Two points in the article call for comment. Mr. Cathcart states: "Of the total number of cases, 68 per cent. have definitely improved after treatment. These comprise 81 per cent. of the cases of nerve deafness, 67 per cent. of the cases of chronic otitis media, and 55 per cent. of the cases of otosclerosis." By otosclerosis I presume Mr. Cathcart means chronic catarrh of the middle ear. These results are so contrary to experience as to suggest a possibility of error. As a rule, when nerve deafness is diagnosed but little hope is entertained of any probability of amelioration. One would be interested to know if Mr. Cathcart has any probable explanation of the unusually favourable results obtained by this method.

The second point calling for comment is the statement that the improvement obtained after a full course of 30 sittings is only maintained for a period of from six to nine months. Such a prospect, if placed before these patients, is likely to be discouraging, and it would be interesting to know if after a second course of treatment there is any prospect of greater permanence of the benefit obtained.

I am, Sir, yours faithfully,

Highgate, N., May 18th, 1925. J. LAWSON DICK.

THE PROBLEM OF TUBERCULOUS MILK.

To the Editor of THE LANCET.

SIR,—The special article in your last issue by Dr. W. G. Savage on the Milk-supply and its Improvement has placed before our profession the facts of tuberculisation as they are, but I fear that Dr. Savage does not realise the position we as farmers and feeders are up against. No amount of supervision will prevent milk from being contaminated with the tubercle bacillus. It is not a question of supervision, but a question of education. Milk which has been contaminated with the tubercle bacillus is without any doubt injurious to human beings, and should not be allowed. It is indeed pathetic in these days of modern civilisation and scientific research that we should allow our population to be infected with bovine tuberculosis and, on the other hand, spend thousands of pounds in curing this infection. Preventive medicine has made enormous advancements, but yet the question of tuberculous infection from milk apparently has not been tracked.

When speaking at the Royal Society of Medicine a few months ago I stated that I could convert a tuberculous herd into a non-tuberculous herd, not by segregation, and certainly not by hygienic methods, but by proper methods of feeding. There is no one who knows the value of milk better than I do for feeding purposes, and I cannot find any food which is equal to milk for this purpose. Yet, on the other hand, I fail when I lecture on these points, as does Dr. Savage. The first half of my lecture is chiefly given up to the advantages of milk as a food and then I have to confess that one runs a great risk in feeding milk which has not been sterilised, knowing that sterilised milk has not the value for feeding purposes that natural milk has. The table summarised by Sir Henry Gauvain is sufficient evidence of the dangers of using milk unsterilised.

What, then, is the position of doctors to-day? We cannot conscientiously advise milk to be taken as provided by the cow unless it be from a certified herd in which every cow has passed the tuberculin test, but we all know that reactors occur, even in the best kept herds, and that one cow in a herd may infect the whole milk produced by that herd, and under modern methods of feeding and modern methods of milking I cannot see anything for it but that instead of having 40 per cent. to 50 per cent. of all cows in this country reacting to the tuberculin test, within a few years we shall have the percentage greatly increased. Those of us who are carrying out vitamin experiments are convinced that if you deplete a cow of the vitamin-A factor, by constantly milking her to the enormous extent that we do nowadays, that cow's resistance to tuberculosis is immediately lowered, with the result that infection is almost certain. Further, just think of the poor calf to-day—it is generally reared on artificial foods, chiefly linseed oil, which food is deficient in vitamin A, and we are only blowing on the wind as medical men.

It is far better for us to prevent the cow becoming infected than to deal with her products when it has become infected, and as the result of my experiments in animal nutrition, I am convinced that if you drain an animal of its vitamin content, by milking or suckling, you must replace that vitamin content by addition to its food, and if this were done tuberculosis amongst cows can be radically dealt with.

I am, Sir, yours faithfully,

M. J. ROWLANDS.

Southwood Farm, Westerham Hill, Kent,
May 25th, 1925.

BAKER'S ITCH AND WORKMEN'S COMPENSATION.

To the Editor of THE LANCET.

SIR,—Your legal correspondent in his note last week on this subject (p. 1049) refers to Dr. Prosser White's remarks at the Royal Society of Medicine, and quotes him as stating that "baker's eczema is unknown in France, and that American statistics point to a similar immunity being enjoyed by workers in the United States." Will you allow me to point out that this immunity can only be attributable to the fact that in these two countries the use of so-called "improvers" in the milling of flour is illegal, and that there should be no difficulty in tracing this complaint to the use of such preparations in this country? One of the commonest is potassium persulphate, which decomposes on the addition of water with liberation of oxygen and formation of potassium acid sulphate, the reaction being expressed as follows:—

$$2\,K_2S_2O_8 + 2\,H_2O = 4\,KHSO_4 + O_2.$$

I have been assured by various competent authorities that before the introduction of these "improvers" baker's itch was unknown in this country.

I am, Sir, yours faithfully,

J. T. AINSLIE WALKER, F.I.C., F.C.S.

Ludgate Hill, London, E.C., May 22nd, 1925.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—F. T. Birkinshaw, Univ. Coll.; M. R. Burke and T. G. L. Davies, St. George's; N. H. Ibrahim, Durham; C. S. Netscher, St. Mary's; and R. J. Rutherford, Durham.

Medicine.—S. J. Alexander, Sydney; M. R. Burke, St. George's; J. H. Clapp, London; J. Herbert, Guy's; P. H. Knowles, Bristol; O. W. Percival, Sydney; W. Irving Pierce, Boston, U.S.A.; J. Maingard, Guy's; R. J. Rutherford, Durham; B. Temple-Raston, St. Mary's; I. Waynik, Charing Cross; and M. E. G. Wilkinson, Bristol.

Forensic Medicine.—S. J. Alexander, Sydney; F. T. Birkinshaw, Univ. Coll.; J. H. Clapp, London; D. T. Jenkins, Edinburgh; I. H. Mackay, Sydney and Univ. Coll.; J. Maingard, Guy's; C. J. Rozario, St. Thomas's; J. Shutt, London; and B. Temple-Raston, St. Mary's.

Midwifery.—S. J. Alexander, Sydney; F. T. Birkinshaw, Univ. Coll.; A. F. Brigmen and D. T. Jenkins, Edinburgh; E. W. D. Long, London; and M. E. G. Wilkinson, Bristol.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: M. R. Burke, T. G. L. Davies, D. T. Jenkins, J. Maingard, O. W. Percival, R. J. Rutherford, and B. Temple-Raston.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At a meeting of the College held on May 20th, Sir Harold J. Stiles, President, in the chair, the 24 successful candidates out of 55 entered, who passed the requisite examinations between Jan. 12th and 19th, were admitted Fellows:—

Robert F. Allan, Bijitendra Basu, Edward J. Bilcliffe, Innes W. Brebner, Russell E. Butchart, Edwin Clark, Harold K. Corkill, Daniel de Bruyn, John A. Doctor, Francis H. Edwards, Frank Ll. Gill, Alan B. Jones, Gilbert E. José, Roshan L. Khera, Richard McAllister, Joseph A. MacFarlane, Colin C. Maclaurin, William J. Payne, Clive J. H. Sharp, Sydney S. Sumner, Cecil H. Terry, Geoffrey W. Theobald, John M. Watters, and John E. Wright.

The following candidates, having passed the requisite examinations, received the Higher Dental Diploma:—

George A. Edwards, William H. Lumb, and John K. Steel.

UNIVERSITY OF MANCHESTER.—At the June meeting of the University Court it was announced that a new development in connexion with the medical school had been made possible by the coöperation of the Royal Infirmary and the University in the appointment of a director of clinical research with a laboratory at the infirmary, and who would be appointed on the recommendation of a joint committee. On the recommendation of the senate and council, the Court agreed that Prof. Archibald Donald and Prof. George Redmayne Murray be made *Professores Emeriti*.

BELGRAVE HOSPITAL, LONDON.—An anonymous offer of £10,000 has been made to the Belgrave Hospital for Children towards the cost of building a new wing, on condition that a similar sum is raised. The wing will cost £27,000.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—The first of the new series of Fellowship lectures will be given at 5.30 P.M. on June 9th at 1, Wimpole-street, when Sir Thomas Horder will speak on Some Cases of Fever without Physical Signs.—A four weeks' course in the study of venereal diseases will be held at the London Lock Hospital (Dean-street) from June 2nd to 27th. Members of the staff will teach in the out-patients' department and will lecture on diagnosis and methods employed for combating these diseases. Early application should be made for this course, as it is only held if a sufficient number of entries are received.—There will be a course in dermatology at St. John's Hospital for Diseases of the Skin from June 2nd to 27th, consisting of instruction in the out-patient department and bi-weekly lectures dealing with various skin diseases.—From June 3rd to 25th eight clinical demonstrations on the more important diseases of tropical countries will be given at the London School of Hygiene and Tropical Medicine by Dr. G. C. Low and Dr. P. Manson-Bahr.—The Chelsea Hospital for Women will hold a course from June 8th to 27th, consisting of operations, demonstrations in the wards and out-patient department.—The Victoria Park Hospital has arranged a two weeks' course from June 8th to 20th, when the various diseases of the heart and lungs will be dealt with, either by demonstration or by lecture.—A special course in Urology will be held at St. Peter's Hospital from June 15th to July 11th.—An intensive course in Medicine, Surgery, and the Special Departments has been arranged by the London Temperance Hospital from June 22nd to July 4th.—Copies of the syllabus for the above courses may be obtained from the Secretary to the Fellowship of Medicine, 1, Wimpole-street, London, W. 1.

ORTHOPÆDICS IN WALES.—The sum of £50,000 has been anonymously placed at the disposal of trustees for the medical treatment of cripples in Wales.—The Committee of the Royal National Orthopædic Hospital has prepared plans for providing an additional 200 beds at the country branch at a cost of not less than £50,000. The present out-patient department is now "hopelessly inadequate," the total attendances last year having greatly exceeded 71,000, and plans have been laid for the extension of this department, the nurses' home, resident medical officers' quarters, and workshops at the cost of another £50,000.

LEICESTER PRIVATE HOSPITAL.—As we announced in our issue last week (p. 1093) a private hospital, the gift of Mr. T. Fielding Johnson, was opened in Regent's-road, Leicester, on May 20th. The opening ceremony was performed by Mrs. Fielding Johnson, and the guests, among whom were many prominent local people and representatives of public bodies, were received at the Museum by the President of the Leicester Medical Society, Dr. T. V. Crosby, and organisations in the city and county. The medical guests included Sir George Newman (Ministry of Health), Dr. R. A. Bolam, Mr. J. Basil Hall, Mr. N. Bishop Harman, Mr. H. S. Souttar (chairman of Council, president, treasurer, and chairman of Hospital Committee of the British Medical Association respectively), Sir H. D. Rolleston (President of the Royal College of Physicians of London), Sir J. Bland-Sutton (President of the Royal College of Surgeons of England), Sir W. A. Lane (President of the Fellowship of Medicine), Sir A. E. Garrod (Regius Professor of Medicine, Oxford), Dr. and Mrs. C. J. Bond, Dr. W. I. Cumberlidge, Councillor Dr. and Mrs. G. Brittan Gill, Dr. and Mrs. R. Wallace Henry, Dr. and Mrs. E. Lewis Lilley, Dr. and Mrs. W. W. Mackarell, Dr. and Mrs. N. I. Spriggs, Dr. and Mrs. Killick Millard, Dr. and Mrs. T. Robinson, Councillor Dr. and Mrs. A. T. Coleman, and Colonel Collis. Other medical men included were from Nottingham, Derby, Northampton, Kettering, Desborough, Rothwell, Spalding, Stamford, Grantham, and Peterborough. For two or three days before the ceremony the hospital had been open for public inspection, and was visited by large numbers of people.

ROYAL NORTHERN HOSPITAL.—On May 25th 14 of the beds closed in 1923 owing to lack of funds were reopened as a maternity department, this having been made possible by the generosity of the Women's United Services League, the Maternity Nursing Association, and the Ladies' League of the hospital. Sir Philip Sassoon spoke of the enormous development of North London during the last 50 years, and of the need in that district for a maternity service. This aspect was further emphasised by the Bishop of Willesden, who said that the Royal Northern, which was the sixth largest hospital in London, served an area of some 70 square miles and a population of about a million. Mr. Malcolm Donaldson, F.R.C.S., said that the three fundamental necessities for combating maternal mortality were the provision of antenatal care, hospitals where any abnormality could be recognised and treated at an early stage, and an efficient nursing service. The new maternity department was to be used as a training centre for midwives, and it was hoped to accommodate about 250 patients—mostly complicated cases—in a year. The Viscountess Jellicoe then declared the maternity department open. She had recently spent five years in New Zealand, where nearly every small town had its own maternity home, a matter in which England, she said, might take a lesson from the Dominion. After the ceremony the maternity department and other parts of the hospital were open to visitors. The Ladies' League maternity ward is the largest, containing five beds; the Lady Jellicoe and the Lady French wards each have two, and there are several single-bed wards. Two of these are for patients able to pay private ward fees, while in the others prices will be accommodated to the patient's income. The light department, housed in an old army hut, has recently been completed. The hut has been divided into cubicles, which serve as treatment rooms for male and female patients, dressing- and waiting-rooms, a surgery and a room for a shower bath, though this has not yet been installed. An arrangement has been made by which children operated on for tonsils and adenoids can be kept in the hospital for 24 or 48 hours.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.—The following arrangements have been made for post-graduate teaching in Glasgow from June till October. The teaching facilities are in three forms: (*a*) General Medical and Surgical Course: During the last two weeks of August and the first two weeks of September a whole-time course, for which an inclusive fee will be charged, will be conducted in a number of the general and special hospitals. The course is arranged to include most of the subjects of interest to the general practitioner. On the four Saturday forenoons tuberculosis and infectious fevers

will be demonstrated at Ruchill Fever Hospital. (*b*) Special Clinical Courses: Certain special classes have been arranged in several of the hospitals to suit the requirements of general practitioners, who have not very much time to devote to hospital work. (*c*) Clinical Assistantships: In a number of the institutions clinical assistantships are available during the summer months as well as at other times of the year. These clinical assistantships are limited in number, and have been designed to make provision for graduates who desire opportunities for the detailed study of one or other of the "specialties." Graduates may thus become attached to wards or out-patient departments, nominally as clinical assistants. As such they will work under the direct supervision of the physician or surgeon in charge, taking advantage of the facilities for intimate study of the cases, and carrying out such detailed investigations as may be directed. They will not be permitted to interfere, however, with the treatment of any patient. Any further information and a full syllabus of the courses will be supplied on application to the Secretary, Glasgow Post-Graduate Medical Association, the University, Glasgow.

HOME FOR RECOVERY AT LIVERPOOL.—Lord Derby on May 19th opened the Clifford Temple Home of Recovery, Aigburth, an adjunct of the David Lewis Northern Hospital, Liverpool. It consists of a mansion, for many years the residence of the Temple family, and is situated in ideal surroundings of six and a half acres of well-wooded grounds. It was bought and presented to the hospital by Mr. Clifford Temple, who accompanied the gift with a donation of 1000 guineas. The intention is to transfer patients from the Northern Hospital when they have passed the acute stage of their illness, thus liberating beds for new cases. There is accommodation for 25 adult male patients. The home is the first of its kind in Liverpool and it will cost £2000 a year to maintain it. Lord Derby expressed himself as strongly in favour of keeping our hospitals as long as we can from any Government or municipal control. Mr. K. W. Monsarrat, senior honorary surgeon, said the time had passed for building new hospitals in the city or to add to the number of their city hospital beds. The proper thing to do was to use the city hospital for emergency purposes, and when the stages of acute treatment are over, to send the patients to homes on the outskirts for recovery.

BRITISH ASSOCIATION MEETING AT SOUTHAMPTON. The annual meeting of the Association will be held at Southampton, where the Association previously met in 1846 and 1882, the session lasting from Wednesday, August 26th, to Wednesday, Sept. 2nd inclusive. The inaugural general meeting will take place in the Central Hall at 8.30 P.M. on the opening day, when Prof. Horace Lamb, F.R.S., will assume the presidency in succession to Sir David Bruce, F.R.S., and will deliver an address. Addresses by Sectional Presidents will be given during the following days as follows:—Psychology: Prof. C. Spearman, F.R.S., on Mental Law of Diminishing Returns. Zoology: C. Tate Regan, F.R.S., on Organic Evolution, Facts and Theories. Chemistry: Prof. C. H. Desch, F.R.S., on the Chemistry of Solids. Physiology: Prof. A. V. Hill, F.R.S., on the Physiological Basis of Athletic Records. Agriculture: Dr. J. B. Orr, on the Inorganic Elements in Animal Nutrition. Discussions will be held in the Section of Educational Science, on Health in Schools, Epidemics and Dietary; in the combined Sections of Psychology and Educational Science on Recent Investigations upon Vocational Guidance; and in the combined Sections of Physiology and Psychology, on the Acquisition of Muscular Skill. Arrangements have been made with the railway companies for the issue of return tickets to Southampton at a single fare and a third. The secretary of the Association is Mr. O. J. R. Howarth, O.B.E., M.A., Burlington House, London, W. 1.

ROYAL SANITARY INSTITUTE.—The thirty-sixth congress of the Institute will be held at Edinburgh from July 20th to 25th. The Duke of York is Honorary President of the congress, and Sir John Gilmour, Bart., M.P., Secretary for Scotland, as President, will deliver his inaugural address to the congress on July 20th. Already 675 delegates have been appointed from nearly 400 sanitary authorities from all parts of the United Kingdom. Delegates will also attend from Australia, India, South Africa, China, Egypt, France, Japan, U.S.A., New Zealand, Canada, Poland, and British West Indies. The meetings will be held in the University. The congress is divided into (*a*) sections: Sanitary science, engineering and architecture, maternity and child welfare, personal and domestic hygiene, industrial hygiene; and (*b*) conferences of various health authorities. The names of those who will preside over these meetings include Captain W. E. Elliot, M.P., Lieut.-Colonel Gerald Leighton, Sir George Newman, Prof. T. Hudson Beare, and Mr. A. Horsburgh Campbell. Over the meetings, more particularly of interest to the lady members, Lady Aberdeen, Lady Minto, Lady Mar and Kellie, and Lady Leslie Mackenzie will preside. Among the subjects of public health interest to be discussed may be mentioned the Government health policy, disease prevention, Schick test and diphtheria, occupation and the tuberculous, rheumatic heart disease, small-pox, cancer, plague, leprosy, diseases of children, open-air schools, midwifery, maternity hospitals, child welfare, homes for children, child gardens, toddlers' playrooms, day nurseries, house management, plumbers' work, reinforced concrete, sewerage of towns on tidal waters, river pollution, slum areas, water-supply, air pollution, milk and meat inspection, health visitor in India, work of a county health visitor, inspection of midwives. The lecture to the congress will be delivered by Sir Leslie Mackenzie, and the popular lecture by Dr. Charles Porter. The health exhibition, which is an important part of the congress, will include appliances for housing and general sanitation, and matters relating to health and physical welfare and domestic comfort, will be held in the Waverley Market. Full particulars of the congress may be obtained from the Secretary at the Royal Sanitary Institute, 90, Buckingham Palace-road, London, S.W. 1.

ROYAL MEDICAL BENEVOLENT FUND GUILD.—A produce market and fête will be held in aid of the Guild on June 24th in the Royal Botanic Gardens, Regent's Park, London, N.W.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the committee 31 cases were considered and £547 voted to 28 applicants. The following is a summary of the new cases relieved:—

M.R.C.S. Eng., 1894, aged 55, unmarried, was a major in the R.A.M.C. A mental breakdown has rendered him unfit for any further work. A brother and four sisters contribute £130 towards his support, but one contribution of £36 per annum has ceased owing to the contributor's ill-health. The Fund was asked to make a grant to cover this amount and £30 was voted in 12 monthly instalments.

Widow, aged 57, of M.R.C.S. Eng. who practised in Monmouthshire and died in 1922. Applicant has tried to support herself by taking boarders, but owing to ill-health and lack of boarders has got into debt. She has had to sell her trinkets and late husband's books to help to pay her way. Total debts amount to £23. Income from boarders £117. Voted £18 in 12 monthly instalments.

Widow, aged 31, of M.B. Aberd. who practised in London and died from tuberculosis in August of last year. Applicant and daughter, aged 6, are left with £3 a week, which will last for another 18 months. She pays her parents £2 10s. a week for herself and child for board and lodging. Applicant is training as a lady hairdresser and the Scottish Corporation found the sum of £30 for the course and asked the Fund to help towards this amount. The Fund voted £15.

M.R.C.S. Eng., aged 68, who practised in Lancashire until ill-health compelled him to give up. Applicant's daughter has tried to support herself and her father, but is now trying to get him in a home as he requires constant attention. The boarding house which the daughter has had is a failure and she now wants to get a post so as to be self-supporting. She asks for a grant as the applicant has no income. Voted £40 in 12 instalments.

Subscriptions may be sent to the Hon. Treasurer, Sir Charters Symonds, at 11, Chandos-street, Cavendish-square, London, W. 1.

DONATIONS AND BEQUESTS.—Mr. Edwin Sutton, of Higher Broughton, Manchester, left, on his wife's death, £1000 to endow an E. and B. Sutton bed in Salford Royal Hospital requesting that as far as possible this should be used preferably for the Sons of Temperance, Salford Grand Division.—Mr. Alfred Hassall Straker, of Oakham, Rutland, and Newcastle-upon-Tyne, left £12,000 to charities, including £5000 to Dr. Barnardo's Homes.—Sir George Wheaton Fox, sugar merchant, of Liverpool, by his will provided £17,000 for charities, as well as gifts to employees. He left £2000 each to the Royal Infirmary and the Blue Coat School, Liverpool; £1000 each to the Royal Southern Hospital, the David Lewis Northern Hospital, the Stanley Hospital, the Liverpool Seamen's Orphanage; and £500 to the Birkenhead Borough Hospital; also a personal bequest of £1000 to Dr. Richard Thacker King, of West Kirby.—Sir William Cresswell Gray, of Bedale, Yorks, shipbuilder, West Hartlepool, left £5000 to the Hospitals Trusts of the Hartlepools; £5000 for a Gray Convalescent Home for his employees, and £250 per annum towards upkeep; and £2000 to the Victoria Homes, West Hartlepool.—Miss Mary Russell, of Cheetham Hill, Manchester, who left estate of the value of £60,525, after fulfilment of a number of personal legacies, left the residue of her property, computed to be about £50,000, to be divided equally between the Christie Hospital Cancer Pavilion and Home, Manchester, St. Mary's Hospitals, Manchester, the Manchester Royal Infirmary, the Manchester Eye Hospital, the Salford Royal Hospital, and the Royal National Lifeboat Institution.—Mr. John William Richardson, of Walmer, Kent, who left property of the value of £11,877, gave, subject to certain legacies and life interests, the ultimate remainder of his property to the Miller Hospital for South-East London, the Seamen's Hospital, Dreadnought, and the Deal and Walmer

Victoria Hospital.—The late Sir George A. Critchett, surgeon oculist to the King, left by will £100 to Epsom College and £100 to the Royal Medical Benevolent Society. —An anonymous donor has made offer of £10,000 for an extension scheme of Hull Victoria Children's Hospital, conditional on another £10,000 being raised. Immediate offers of £500 each were made by Mr. G. J. Bentham and Messrs. Reckitt and Sons.—At the spring meeting of the governors of the University College of Wales at Barmouth, it was announced that the Misses Davies, of Llandinam, who had already subscribed very generously towards the College, had sent a gift of £2500 to clear the bank overdraft on the Edward Davies Chemical Laboratories, Aberystwyth. —Mr. W. Henry Hutchinson left £100 to the Leicester Royal Infirmary.—Mr. David Isaacs, Cape Town, South Africa, left £100 each to the London Hospital, the Jews Hospital and Orphan Asylum, the Jewish Deaf and Dumb Home, the Jewish Institution for Indigent Blind, the Hospital for Consumption and Diseases of the Chest, London, S.W., the Metropolitan Hospital, London, and the Middlesex Hospital. Also £100 each to ten institutions in Cape Town.—Dr. May Thorne, one of the governors of the Royal Free Hospital, during a sojourn in the United States, collected £1500 for the endowment of beds in the George Washington Ward of the hospital—the only ward of its name in the world. Hopes are entertained of receiving shortly a further £3500, also from America.—Mr. Thomas McLaren Davidson, Dundee, on the death of a legatee, left £1050 to Dundee Royal Infirmary, to endow a cot in the children's ward, to be known as the "Thomas McLaren Davidson and Margaret Davidson Cot."—Mr. Arthur Turner, Southam, Warwickshire, who left estate of the gross value of £34,974, failing issue to his daughter, gave the ultimate residue of his estate, as to five-twelfths to the Warneford Hospital, Leamington, one-twelfth each to the Midland Counties Home and Hospital for Incurables, and the Royal Devonshire Hospital, Buxton.

MEDICAL WOMEN'S FEDERATION.—The annual meeting was held in the rooms of the Medical Society of London on May 7th. The annual report showed that during the year the membership of the Federation largely increased, the total membership on Dec. 31st, 1924, being 900. Reports from the various committees of the Federation were received and discussed by the council at a meeting held on May 8th and 9th, under the presidency of Miss Frances Ivens. The report of the Standing Committee for the Defence of Married Medical Women dealt with the action taken in connexion with the resolution of the London County Council, passed last October, making married medical women ineligible for posts on the Council staff. The objects aimed at were the rescinding of the standing order against the employment of married women workers in general, and the establishment of the principles of free choice of candidates and the consideration of cases on their own merits. In connexion with the report of the subcommittee appointed to consider the Nursing Homes (Registration) Bill, motions were passed—

(1) That in the case of the house of a doctor taking in patients, the inspection should be carried out by a medical practitioner, and not by a nurse; and (2) no doctor who has a professional plate already fixed to the exterior of the house shall be compelled to display in addition the fact that the house is used for resident patients—this should not exempt the doctor from the duty of registration under the Act, nor from inspection which in the case of a doctor should be carried out by a medical officer.

It was recommended that the house of a medical practitioner taking in not more than one patient for treatment or supervision should be exempted from inspection. Reports were also received from representatives of the Federation on Committees of the British Medical Association. Some discussion arose on the report of the representative on the B.M.A. Insurance Acts Committee, and the following resolution was passed:—

That in the event of the extension of the National Health Insurance medical benefits to wives and adult dependants of insured persons, the general principle of the free choice of a doctor should be jealously guarded.

The progress in various countries of the Medical Women's International Association was recorded by the National Corresponding Secretary. The Medical Secretary reported that a large number of underpaid posts had been advertised, and that the Federation had approached any women candidates applying for these in any case coming under their cognisance. Several had withdrawn in consequence. Considerable discussion arose on the salaries in public health posts and the amount of experience that should be required from candidates for such posts. It was resolved—

That in the opinion of the Council of the Medical Women's Federation, the doctors to be appointed as assistant medical officers of health at £600 a year should have had at least three years' post-graduate experience, such experience to include work which should specially qualify for the post, and if possible some time in general practice. For the third year a minor public health appointment at £500 a year might be accepted.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Bills Advanced.

ON Thursday, May 21st, the Poor-law (Emergency Provisions Continuance Scotland) Bill was considered on report and read a third time. The Pensions Bill was considered on report and agreed to.

HOUSE OF COMMONS.

WEDNESDAY, MAY 20TH.

Maternity and Child Welfare Centres.

Mr. GROVES asked the Minister of Health the number of child welfare centres in the various localities in actual operation at present.—Sir KINGSLEY WOOD (Parliamentary Secretary to the Ministry of Health) replied: According to the information in the possession of my right hon. friend's department the number of maternity and child welfare centres in England and Wales in operation on May 1st was 2368.

Tuberculosis Statistics.

Lieut.-Colonel HENEAGE asked the Minister of Health if he could give the total number of people in Great Britain suffering from tuberculosis in 1924, and the number of deaths; the total number of children under 14 years suffering from tuberculosis of the glands and bones, and the number of deaths; if he could give the numbers traced to milk infection; and all the above figures for Lincolnshire.—Mr. N. CHAMBERLAIN replied: I regret that information is not available as to the total numbers of persons who were suffering from tuberculosis in 1924. I have, however, recently issued special regulations as the result of which reliable data should be available next year as to the numbers of tuberculous persons whose cases have at any time been notified to medical officers of health and who are still suffering from the disease at the end of 1925. The number of deaths in England and Wales in 1924 from all forms of tuberculosis was 41,103; and in Lincolnshire (including the county boroughs of Lincoln and Grimsby) 636. The number of deaths of persons under 15 years of age from tuberculosis of the glands and bones in England and Wales was 72. Separate figures for Lincolnshire are not at present available. I cannot say in how many of these cases milk infection was traced. Researches made on behalf of the Medical Research Council would, however, indicate that, in a series of cases of bone and joint tuberculosis in children, the infection was found to be of bovine origin in some 20 per cent. of the cases; whilst in cases of gland tuberculosis the percentage was considerably higher.

Vaccination Marks.

Mr. WHITELEY asked the Minister of Health whether he was aware that modern methods of vaccination tend to produce faint marks which sometimes disappear; and whether the medical officials of the Ministry based their classifications of small-pox cases in regard to the vaccinal condition on the presence or absence of the vaccination mark.—Mr. N. CHAMBERLAIN replied: I am advised that the marks produced by modern methods of successful primary vaccination seldom disappear. Small-pox cases are classified in the annual reports of the chief medical officer of my department under the following headings: (*a*) Vaccinated as evidenced by presence of one or more vaccination cicatrices; (*b*) stated to have been successfully vaccinated, but no vaccination cicatrix present; (*c*) stated to be unvaccinated (or vaccinated unsuccessfully) and no vaccination cicatrix present; (*d*) previously unvaccinated, but vaccinated during incubation of small-pox; (*e*) stated to have been successfully revaccinated.

Deaths of Women in Childbirth.

Mr. GROVES asked the Minister of Health whether he was aware that over 4000 women died per year in Great Britain at childbirth; whether he was prepared to circularise all local authorities to urge the establishment of antenatal clinics, where the best skilled advice would be obtainable, and arrange, where the prospective mother was too poor to engage the services of a qualified medical man, that this service should be provided freely; and whether he would cause investigation to be made relating to the present provision of maternity homes.—Mr. N. CHAMBERLAIN replied: I am sending the hon. Member a copy of a circular on the subject of maternal mortality addressed to local authorities on June 30th, 1924, together with a copy of the report referred to in the circular which gives statistics relating to maternity mortality in England and Wales. This circular impresses upon maternity and child

welfare authorities the importance both of antenatal supervision and of the provision of specialist advice and treatment for necessitous patients whenever necessary. Under the Midwives Acts the services of a doctor are available in emergencies without cost to the patient if she is unable by reason of poverty to pay the doctor's fee. The circular also urges the provision of maternity beds, and in individual cases local authorities are recommended to make good any deficiencies in this respect which are discovered as the result of inspections by my medical officers. I see no need for any special investigation on this point.

Deaths from Infectious Diseases.

Mr. RHYS DAVIES asked the Minister of Health whether he would give, in tabular form, the number of deaths from influenza, scarlet fever, measles, whooping-cough, chicken-pox, sleepy sickness, and small-pox for each of the last ten years.—Mr. N. CHAMBERLAIN replied: The required figures for England and Wales are as follows:—

Year.	Influenza.	Scarlet fever.	Measles.	Whooping-cough.	Chicken-pox.	Encephalitis lethargica.	Small-pox.
1915 ..	10,484	2,406	16,445	8,143	92	—	13
1916 ..	8,791	1,381	5,413	6,075	65	—	18
1917 ..	7,289	768	10,538	4,509	69	—	3
1918 ..	112,329	1,020	9,787	9,898	54	16	2
1919 ..	44,801	1,221	3,534	2,605	55	294	28
1920 ..	10,665	1,430	7,190	4,401	71	480	30
1921 ..	8,995	1,305	2,241	4,576	57	729	5
1922 ..	21,498	1,382	5,694	6,370	40	339	27
1923 ..	8,461	993	5,316	4,162	52	531	7
1924 ..	18,986	888	4,834	3,983	59	1,407	13

THURSDAY, MAY 21ST.

Revision of Medical Awards.

Captain GEE asked the Minister of Pensions whether awards made by medical boards were subject to revision by officials of his department.—Major TRYON replied: Under the terms of the Royal Warrant pension can only be awarded in accordance with the rate of assessment certified by a medical board, or a medical officer of the Ministry. In point of fact, every award made by my department under the Royal Warrant is in accordance with the assessment given by a medical board which has actually seen and examined the man.

Electrocardiograph for Pensioners.

Captain GEE asked the Minister of Pensions whether his department possessed an electrocardiograph; and, if not, would he consider the advisability of obtaining one in the interests of ex-Service men suffering from cardiac disability.—Major TRYON replied: Arrangements have been in force for some years with local institutions whereby the Ministry obtain electroradiograms in all cases where this is medically considered necessary. The nature of the Ministry's work, whereby medical examination is carried out in the interest of pensioners at a variety of centres throughout the kingdom, has not made it practicable to adopt my hon. friend's suggestion.

Procedure in Coroners' Courts.

Mr. DIXEY asked the Home Secretary whether he had any statement to make as to when he proposed to introduce legislation to regulate or abolish the procedure of double inquiries of magistrates' courts and coroners' courts in murder and manslaughter cases.—Sir W. JOYNSON-HICKS replied: I hope to introduce the Coroners Bill very shortly.

Approved Societies and Hospital Payments.

Mr. GRUNDY asked the Minister of Health how many approved societies and branches have agreed to devote a portion of their surpluses to payments in respect of hospital treatment of their members to the funds of voluntary hospitals; and what was the sum given to voluntary hospitals under agreements with approved societies during the 12 months ending March 31st, 1925.—Mr. N. CHAMBERLAIN replied: The number of societies and branches in England whose existing schemes of additional benefits include payments to hospitals or convalescent homes is 963, with a membership of about 5 million insured persons. The sum spent under this additional benefit during the year ended Dec. 31st, 1924, was about £210,000. It is not possible to state how much of this sum was paid to hospitals, as distinct from convalescent homes, but it is believed that by far the greater part was paid in respect of the treatment of members in hospitals.

Powers of the General Medical Council.

Mr. BASIL PETO asked the Minister of Health whether he would consider the amendment to the Medical Act of 1858 in order to give a right of appeal to medical practitioners struck off the Register by decisions of the General Medical Council holding them guilty of infamous conduct.—Mr. N. CHAMBERLAIN replied: I am not aware that there is any general demand among the medical profession for the amendment of the Medical Acts in the direction suggested by my hon. friend, and in the absence of general agreement I am not prepared to introduce legislation.

Mr. PETO: Does the right hon. gentleman not think that the absolutely autocratic powers over the lives and careers of the whole medical profession which the General Medical Council has under the Act of 1858 require some revision?

Sir H. CRAIK: Is it the experience of the right hon. gentleman's department that the action of the General Medical Council has been highly expedient in the interests of health and the community generally?

Mr. N. CHAMBERLAIN: If there were any general feeling among the medical profession that the powers of the General Medical Council were excessive I do not think I should have any difficulty in ascertaining it. They have not generally been backward in putting forward any grievance.

Instruction in Manipulative Surgery.

Mr. BASIL PETO asked the Minister of Health whether, in the interest of public health, he would consider legislative action to insure that persons qualified to give practical instruction in manipulative surgery should have the opportunity of giving it and also of obtaining degrees in this branch of surgery.—Mr. N. CHAMBERLAIN replied: Under the revised medical curriculum adopted by the General Medical Council in 1922 practical instruction in manipulative surgery can be, and is, given by persons holding registrable medical qualifications. As at present advised I am not prepared to recommend legislation for the purpose of establishing degrees or diplomas for persons who have not satisfied the statutory requirements of the General Medical Council.

Scientific Research.

Mr. HERBERT WILLIAMS asked the Prime Minister whether action, to ensure adequate coördination in respect of the whole of the expenditure exceeding £4,000,000 provided in this year's estimate for scientific research, was being taken by the Lord President of the Council.—Mr. BALDWIN replied: My noble friend, the Lord President of the Council, has no responsibility for ensuring adequate coöperation in respect of the whole of the expenditure for scientific research, which is estimated for 1925–26 to exceed £4,000,000, but the Department of Scientific and Industrial Research and the Medical Research Council, for whose activities the Lord President is responsible, is so far as the first-named department is concerned, provided with machinery for the coördination of the research work of the technical establishments of the fighting services which has a civilian interest and of certain other Government departments. The department has no control over the work of the research establishments maintained by other Government departments, and has no responsibility in connexion with research undertaken purely for defence purposes. Conferences between representatives of the Department of Scientific and Industrial Research, the Medical Research Council, and the Development Commission are held periodically for the consideration of matters of common interest to these departments.

Cost of Tuberculosis Treatment.

Colonel DAY asked the Minister of Health the total amount spent by local authorities on tuberculosis treatment in the years 1923 and 1924 respectively, including capital expenditure.—Mr. N. CHAMBERLAIN replied: The following table shows the gross expenditure, so far as information is at present available, of local authorities in England and Wales on the treatment of tuberculosis, during the financial years ended on March 31st, 1923 and 1924:—

—	Year ended March 31st—	
	1923.	1924.
	£	£
Capital expenditure defrayed out of loans on capital grants ..	348,748	Not yet available.
Other expenditure	2,749,073	2,766,131

Deaths from Hydrochloric Acid Poisoning.

Colonel DAY asked the Minister of Health the number of deaths caused by persons drinking spirits of salts during the year 1924; whether he was aware that the sale of this dangerous poison was on the increase; and if he would

take any action that will make the same less accessible.—Mr. N. CHAMBERLAIN replied: The figures for the year 1924 are not yet available. The number of deaths from hydrochloric acid poisoning in 1923 were: suicides 73 and accidents 7. These figures do not differ appreciably from those of the two previous years, and on the information at present available there does not appear to be any ground for increasing the restrictions on the sale of hydrochloric acid already imposed by Section 5 of the Poisons and Pharmacy Act, 1908.

Deaths from Small-pox.

Mr. BROAD asked the Minister of Health the ages of the 13 persons registered in 1924 as dying from small-pox and the districts in which those deaths were registered; and whether any other disease was mentioned on the death certificate.—Mr. N. CHAMBERLAIN replied: The following table gives the particulars asked for:—

Sex and age.	(*a*) Area in which death occurred. (*b*) Area of residence.	Cause as certified.
M., 10 mths.	(*a*) (*b*) Hucknall.	Sm.-p.; marasmus.
F., 15 „	(*a*) (*b*) Middlesbrough.	Whooping-cough; broncho-pneum.; sm.-p.
F., 9 „		Sm.-p.; convulsions
M., 15 yrs.	(*a*) Plymouth; (*b*) Stockton-on-Tees.	Sm.-p.
M., 2 mths.	(*a*) (*b*) Stapleford.	Variola.
M., 24 days	(*a*) (*b*) East Dean and United Parishes.	Sm.-p.
F., 22 mths.		Sm.-p.; measles; convulsions during convales.
F., 14 yrs.	(*a*) (*b*) Chesterfield.	Congen. cretinism; valv. heart dis.; dropsy; sm.-p.
F., 28 days	(*a*) (*b*) Barnsley.	Congen. debility; variola.
F., 36 yrs.	(*a*) Kingsbury; (*b*) Willesden.	H. sm.-p.
M., 7 „		H. sm.-p.; cardiac failure.
F., 39 „		Ditto.
F., 52 „	(*a*) (*b*) Ashington.	Pelvic abscess; sm.-p.

H. sm.-p. = Hæmorrhagic small-pox.

MONDAY, MAY 25TH.

Naval Ratings and Tuberculosis.

Sir BERTRAM FALLE asked the Parliamentary Secretary to the Admiralty what percentage of naval ratings invalided during the year 1924 owing to tuberculosis was attributable to service; and what percentage was considered to be not attributable to service.—Mr. DAVIDSON replied: The percentages are 4 per cent. and 96 per cent. respectively.

TUESDAY, MAY 26TH.

Books on Technical Subjects.

Mr. J. B. COUPER asked the President of the Board of Trade whether he would introduce legislation making compulsory the insertion in every book of the date of compilation or of issue, in view of the mass of technical literature published in recent years and the difficulty in ascertaining readily the most up-to-date publications on various technical subjects.—Sir BURTON CHADWICK (Parliamentary Secretary to the Board of Trade) replied: I cannot hold out any prospect of such legislation.

Scottish Medical Insurance Officers' Reports.

Mr. JOHNSTON asked the Under Secretary to the Scottish Board of Health if he would make available for the inspection of members in the library copies of the reports for the year 1924 of the district medical insurance officers under the Scottish Board of Health for the cities of Edinburgh, Glasgow, Aberdeen, and Dundee.—Captain ELLIOT replied: The reports in question are of a confidential nature, and it would not be in the public interest to publish their contents in full. A summary of salient features with extracts relating to points of special interest will, however, be embodied in the Board's annual report for 1924, which will be made available at the earliest possible date.

Dr. G. F. Buchan has been elected President of the Society of Medical Officers of Health for the session 1925–6.

EXTENSION OF DUNDEE ROYAL INFIRMARY.—Through a gift of £25,000 from Mrs. Marryat, Dundee Royal Infirmary has just been able to open an extension of the Caird Pavilion comprising operation theatres and a medical electrical department.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Wednesday, June 3rd.

SURGERY: at 5.30 P.M.
Paper:
Dr. Charles H. Mayo: A Consideration of Gastric and Duodenal Ulcer.
(See below under Saturday, June 6th.)

Thursday, June 4th.

OBSTETRICS AND GYNÆCOLOGY: at 8 P.M.
Annual General Meeting (adjourned from May 7th):
Election of Officers and Council.
Election of Corresponding Member.
To be followed immediately by the Ordinary Meeting.
Specimens:
Mr. A. C. Palmer: Endometrioma of Perineum and Vulva (three cases).
Mr. Aleck Bourne: (1) Chorion-epithelioma; (2) Chronic Metritis as a Cause of Sustained Pyrexia.
Papers:
Dr. Abernethy Willett: Placenta Prævia treated by Traction on the Fore-coming Head.
Mr. D. C. L. Fitzwilliams (introduced by Mr. C. White): Curiosities in Connexion with the Secretion of Milk.

Friday, June 5th.

LARYNGOLOGY: Summer Meeting.
Papers: at 9.30 A.M.:
Dr. Tapia (Madrid): The Big Pharyngostomes as an Accident in Laryngectomy. How they can be avoided and way of closing them.
Followed by Mr. Wilfred Trotter and Mr. Lionel Colledge.
Prof. Burger (Amsterdam): Speech after Laryngectomy (with exhibition of a patient).
Demonstrations:
Mr. Lionel Colledge: McKenty-Western Artificial Larynx (with exhibition of patients).
Mr. R. Graham Brown (Brisbane): An Artificial Larynx.
Papers:
Dr. Charles Mayo: Methods of Caring for Diseases of the Pharynx, Larynx, and Mouth.
Dr. Ritchie Rodger (Hull): Tracheotomy in Tuberculous Laryngitis.
Microscopical and Lantern Demonstration:
Dr. A. Logan Turner and Dr. F. E. Reynolds (Edinburgh): Furuncle of the Nasal Vestibule and Cavernous Sinus Thrombosis: the Pathway of Infection.
Kinematograph Film:
Sir Charles Ballance and Mr. Lionel Colledge: Restoration of Movement in Vocal Cord after Nerve Anastomosis.
Papers:
Dr. J. S. Fraser: Intranasal Dacryocystotomy.
Dr. A. Lowndes Yates: The Sinus Condition in Encephalitis Lethargica.
Cases and Specimens will be shown at 3 P.M. by Mr. Douglas Guthrie, Mr. Harold Kisch, Mr. R. Graham Brown, Dr. Jobson Horne, Sir James Dundas-Grant, Mr. Ridout, Mr. Jefferson Faulder, Mr. Herbert Tilley, and Dr. Dan McKenzie.

Saturday, June 6th.

OTOLOGY: at 10.30 A.M. (Cases at 9.45 A.M.)
General Discussions:
Methods of Drainage of Brain-abscesses.
Artificial Aids to Hearing.
Cases and Specimens will be shown.

SURGERY.
A Dinner will be given by the Section in honour of Dr. Mayo, on the evening of Saturday, June 6th, at the Hotel Cecil, at 7.30 P.M. Tickets, exclusive of wine, 15*s.* each.
All applications for seats must be accompanied by cheque for the number of tickets required, and should be sent to the Hon. Secretaries of the Section, at 1, Wimpole-street, W., by Saturday, May 30th.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, June 1st, to SATURDAY, June 6th.—LONDON LOCK HOSPITAL, Dean-street. Comprehensive Course. Daily Instruction in Out-patient Departments and lectures by members of the staff.—LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Endsleigh-gardens, N.W. Tuesday and Thursday, 2 P.M., Lecture-demonstrations by Dr. P. Manson-Bahr and Dr. G. C. Low.—ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square. Daily Demonstrations in the Out-patient Department. Bi-weekly lectures by Dr. Griffith and Dr. Sequeira.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

TUESDAY, June 2nd.—12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Sinclair: Surgical Out-patients. 3 P.M., Dr. Pritchard: Medical Wards.

WEDNESDAY.—11 A.M., Medical Registrar: Medical Wards. 2 P.M., Dr. Owen: Medical Out-patients. 2.30 P.M., Mr. Donald Armour: Surgical Wards.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 11 A.M., Sir Henry Simson: Gynæcological Wards. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.

FRIDAY.—10 A.M., Dr. Dowling: Skin Dept. 12 noon, Surgical Registrar: Surgical Pathology. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Dept.

SATURDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.

Daily, 10 A.M., to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: MAY–JUNE, 1925.

CLINICAL LECTURES AND DEMONSTRATIONS.

TUESDAY, June 2nd.—2 P.M., Out-patient Clinic: Dr. Walshe. 3.30 P.M., Disorders of Gait: Dr. Risien Russell.

THURSDAY, June 4th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Encephalitis Lethargica and its Sequelæ: Dr. Hinds Howell.

FRIDAY, June 5th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Some Types of Myopathy: Dr. James Collier.

COURSE OF LECTURES AND DEMONSTRATIONS ON THE PATHOLOGY OF THE NERVOUS SYSTEM.

MONDAY, June 8th.—12 noon, The Neuron: Dr. J. G. Greenfield.

COURSE OF LECTURES AND DEMONSTRATIONS ON THE ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM.

TUESDAY, June 2nd.—12 noon, The Basal Ganglia: Dr. Walshe.

THURSDAY, June 4th.—12 noon, The Forebrain: Dr. Walshe.

Dr. H. J. Macbride will give a COURSE OF EIGHT CLINICAL DEMONSTRATIONS, chiefly on METHODS OF EXAMINATION OF THE NERVOUS SYSTEM, in the Wards at 10 A.M. on Tuesdays and Fridays, if sufficient entries are received. The fee for this Course will be £2 2s. (commenced Tuesday, May 19th).

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course.

Fees should be paid to the Secretary of the Hospital at the office on entering for the Course.

J. G. GREENFIELD, Dean of Medical School.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

TUESDAY, June 9th.—4.30 P.M., Dr. J. K. C. Laing: Demonstration of Cases of Mental Disease (at the Mental Hospital, New Southgate, N.).

FRIDAY.—4.30 P.M., Mr. A. E. Giles: Treatment by Radiation in Gynæcology.

Daily.—Clinics in General and Special Departments, Demonstrations, Operations, &c.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, Leicester-square, W.C.

TUESDAY, June 2nd.—5 P.M., Dr. Griffith: The Bullous Eruptions.

THURSDAY.—5 P.M., Dr. Sequeira: Dermatitis Artefacta.

ST. MARY'S HOSPITAL INSTITUTE OF PATHOLOGY.

THURSDAY, June 4th.—5 P.M., Sir Arthur Keith: The Structural and Functional Disorders of the Great Bowel.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES. (At 3.30 P.M.)

WEDNESDAY, June 3rd.—(At the Northern Hospital.) Dr. H. S. Pemberton: The Treatment of Dyspepsia.

THURSDAY.—(At the Stanley Hospital.) Dr. Gullan: Diabetes and its Treatment.

Appointments.

FRAZER, W. M., M.B., Ch.B. Liverp., D.P.H., has been appointed Medical Officer of Health, Dewsbury.

MCFADDEN, GEORGE D. F., M.B., M.Ch., F.R.C.S. Eng., Assistant Surgeon to the Ulster Hospital, Belfast.

MURRAY, GEORGE R., M.D. Camb., F.R.C.P. Lond., Emeritus Professor of Medicine in the Victoria University of Manchester and Consulting Physician to the Manchester Royal Infirmary.

PORTEOUS, A. B., M.D., B.S. Lond., D.P.H., Acting Medical Officer of Health and Administrative Tuberculosis Officer, Paddington.

ROBERTSON, J. K. A., M.D. Edin., to be one of the Medical Referees under the Workmen's Compensation Act for the Greenock District.

King's College Hospital: MITCHELL, A., M.R.C.S., L.R.C.P., STRAUSS, E. B., B.M., B.Ch., POWELL, R. V., M.R.C.S., L.R.C.P., OSBORN, M. M., M.R.C.S., L.R.C.P., FRANKLIN, E. L., M.R.C.S., L.R.C.P., ROBERTSON, N. L. D., M.B., B.S., FISH, W. M., M.R.C.S., L.R.C.P., PENNETT, G. M., M.R.C.S., L.R.C.P., HERBERT, F. K., M.R.C.S., L.R.C.P., MALMBERG, M., M.R.C.S., L.R.C.P., and BUCKLEY, O. B., M.R.C.S., L.R.C.P., additional Clinical Assistants; PERKINS, A. C. T., M.B., B.S., and SIMPSON, A. S., M.R.C.S., L.R.C.P., Casualty Officers; TOWNSEND, H. S., M.R.C.S., L.R.C.P., House Anæsthetist; NEWMAN, C. E., M.B., B.Ch., WOOD, C., M.R.C.S., L.R.C.P., COLLIS, W. R. F., M.R.C.S., L.R.C.P., COVE-SMITH, R., M.R.C.S., L.R.C.P., and READ, T. S., M.R.C.S., L.R.C.P., House Physicians; COOPER, H. A., M.R.C.S., L.R.C.P., DYER, R. H., M.R.C.S., L.R.C.P., DAGGETT, W. I., M.R.C.S., L.R.C.P., AHRENS, B. E., M.R.C.S., L.R.C.P., CORY, J. W. E., M.R.C.S., L.R.C.P., STRANGE, F. O. T., M.R.C.S., L.R.C.P., APPLETON, C. E., M.R.C.S., L.R.C.P., and ADLINGTON, B., M.R.C.S., L.R.C.P., House Surgeons; EDMUNDS, H. C., M.R.C.S., L.R.C.P., Junior House Anæsthetist; WILES, M. A., M.R.C.S., L.R.C.P., Junior House Surgeon to the Throat Department; SEAH, E. K., M.R.C.S., L.R.C.P., Assistant Casualty Officer; ALLEN, B. L., L.D.S., Second Dental House Surgeon.

Vacancies.

For further information refer to the advertisement columns.

Blackburn County Borough.—Asst. M.O.H. and Asst. Sch. M.O. £600.

Blackburn Union Institution and Infirmary.—Res. Asst. M.O. £200.

Cambridge, Addenbrooke's Hospital.—H.S. Also H.P. Each at rate of £130.

Chelsea Hospital for Women, Arthur-street, S.W.—Sen. and Jun. H.S.'s at rate of £120 and £100 per annum respectively.

Essex Administrative County.—Sen. Clin. Tuberc. O. £750.

Hoo Rural District.—Part-time M.O.H. £60.

Hospital for Sick Children, Great Ormond-street, W.C.—H.S. Also H.P. Each at rate of £50.

Hove Hospital, Sackville-road.—Res. M.O. £175.

Lindsey County Council.—Locum Tenens Asst. Sch. and Tubere. O. at rate of £600.

London Hospital.—Head of Children's Dept.

Patna, India, Medical College.—Prof. of Pharmacology, Prof. of Anatomy, and Prof. of Physiology. Each Rs.1200 per mensem.

Queen Mary's Hospital for the East End, Stratford, E.—H.P.'s and H.S.'s. &c.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Asst. S.

Royal Free Hospital, Gray's Inn-road, W.C.—Asst. Cas. O., H.P. Also two H.S.'s.

Royal Northern Hospital, Holloway, N.—Two Asst. Surg. O.'s. Each £75.

St. Bartholomew's Hospital Medical College.—Lecturer on Pharmacology and Therapeutics.

Salford Royal Hospital.—H.S., H.S. to Gynæcological, &c., Depts., and H.P. Each at rate of £125.

Sheffield, Jessop Hospital for Women.—Asst. H.S. at rate of £100.

Sheffield Royal Hospital.—Res. Surg. O. £200

South-Eastern Hospital for Children, Sydenham.—Asst. P.

South London Hospital for Women, South Side, Clapham Common, S.W.—Asst. P.

Surrey County Council.—Asst. M.O.'s in Public Health Dept. £600.

Wandle Valley Joint Hospital Board Isolation Hospital, Beddington Corner, Mitcham Junction.—Res. M.O. £400.

West Bromwich Union Infirmary, Hallam-street.—Sen. and Jun. R.M.O. £300 and £250 respectively.

West London Hospital, Hammersmith-road, W.—H.P., H.S., Aural H.S., and Res. Cas. O. Each at rate of £100.

Births, Marriages, and Deaths.

BIRTHS.

FICKLING.—On May 23rd, the wife of E. L. Fickling, M.R.C.S., L.R.C.P., L.D.S., of Brook-street, W., of a daughter.

GREENLEES.—On May 17th, at Buckingham-terrace, Glasgow, W.C., the wife of James R. C. Greenlees, D.S.O., M.B., B.Ch., of a daughter.

HARVEY-WILLIAMS.—On May 21st, at Lisnamoe, Hitchin, Herts, the wife of Robert Harvey-Williams, F.R.C.S. Edin., of a son.

MACARTHUR.—On May 17th, at Wigmore-street, W., the wife of Bt. Lieut.-Colonel W. P. MacArthur, D.S.O., R.A.M.C., of a son.

DEATHS.

BATE.—On May 21st, at Surbiton, Edwin Beresford Bate, M.B. T.C.D.

SOUTTER.—On May 16th, Dr. Mansfield Knox Soutter, of Avenell-road, Highbury.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

THE AWKWARD AGE.*

BY W. A. POTTS, M.A., M.D. EDIN.,
PSYCHOLOGICAL EXPERT TO THE BIRMINGHAM JUSTICES; HON. PHYSICIAN TO THE TAVISTOCK CLINIC FOR FUNCTIONAL NERVOUS DISEASE.

THE awkward age is the period from 14 to 21 years of age. There is no real character at birth, but it may be fully developed at 21. Some consider the character fully developed by 18, but we shall be nearer the mark if we say character growth should be completed at 21 in the young woman and 25 in the man. As a matter of fact, character growth has never gone its full distance except in the case of that rare person, the perfectly normal individual, whom no one has yet seen. We are all in our psychological age or character development years behind our chronological age. If you do not agree you should think very carefully about some of your adult relations or friends whom you know best. It is impossible for most of us to see it in ourselves as we are too close to what we want to see, but it is not so difficult sometimes in regard to others, particularly men; women, especially those who have a strong maternal instinct, often develop psychologically beyond their male companions. It is a common observation of many wives that their husbands remain just big boys. This is not a delusion but a true observation. The boys may be successful in their business or profession and lead satisfactory lives, for they often have been well trained, but remain just big school-boys, a source of unconscious disappointment to their better developed mates, who hoped, and often still believe, they have got a strong sensible man. If you doubt this, you should observe a group of men in the army, in their clubs, and at their sports, especially at golf, which is one of the most serious businesses of life. And if you still doubt you should compare men with women in their clubs, or better still in their debating societies, or best of all in their own homes, where their work never ends, but where there must always be peace when father returns from his arduous work in the office.

The First Stage of Life.

When the child is born it is at first as much a part of the mother as it was before birth; during the earliest years of life it cannot exist apart from the mother, who herself, at first out of herself provides its food, cleans it, keeps it warm, and regulates its whole life. If the mother dies at this stage the baby inevitably dies too, unless some substitute takes the mother's place. This early time in life is so simple and easy for the child, who has every want supplied, if not anticipated, that it is often spoken of as Paradise. It is the stage of life to which we all unconsciously yearn to return. What does the married man in financial difficulties occasionally do but think how he missed his chance with the plain girl with the dollars, who was so obviously interested in him, when he foolishly threw in his lot with his more capable, but penniless, wife. In a similar way the young married woman who has had a tiff with her husband suddenly remembers that she has quite forgotten her father, who is not being properly cared for in the old home—dear old father, who was always so kind and understanding, who often wrote cheques before he was asked, and could never refuse his favourite child a new frock; then she runs away for the week-end from reality and her husband, back to her indulgent old father—back to Paradise.

The Maternal Instinct.

I have already indicated the great value attached to the maternal instinct, the most beautiful of all instincts. The tragedy for the mother is that the time for its full exercise is so very short; in the early years of the child's life she must begin to teach it to grow away from her and gradually to become independent. The curve denoting the degree of attachment to the mother falls rapidly; by 7, one of the many crises of life, it should be diminished. About 12 the mother sees her boy transfer his main interest and affection from her to his father for the next year or two; if the child is a girl the mother is left in the lurch even earlier, for at 10 the girl's emotions should be centred round her school companions. I cannot do more than briefly indicate this emotional development; those of you who are specially interested will find it well described in Dr. H. Crichton-Miller's book, "The New Psychology and the Parent." Much of the child's future success and happiness depends on wise handling by the mother during this difficult time. She must have broad views and look into the future. If she does guide the child wisely, he may—indeed, must—leave her for a time, but will come back when he has really grown up, honouring her as the wisest, kindest, and best guide, counsellor, and friend he ever had. The mother must watch that she never selfishly clutches her child after 7, and worst of all between 14 and 21, with that strangle-hold so fatal to individual development. That hold, far too common, is a heavy handicap for the child till he has fought free of it, which he should not have to do. Till he is free he cannot make the best of his talents, and will not go to his mate, when he marries, prepared to be the master in his own house. One difficulty is that the child both wants to get away and develop, but also unwittingly clings to the mother; all children are afraid of life and of facing the great adventure it involves. From our earliest days fear, especially of the unknown, is a bigger factor in our mental horizon than most of us would like to admit.

Pleasures connected with children are among the purest and best in life. But we can only have those pleasures for a short time. Family life is the ideal way of training the child for life, but we must remember that after 10 the child must leave the parents more and more; if they hold him back, if mother still expects to share all his school experiences, he will never develop esprit de corps, or keenness for his house and school. Still less can he appreciate patriotism, or grow beyond that, so that he can say with Edith Cavell, Patriotism is not enough; and accept the League of Nations and all that connotes. The mistake of so many parents is, not that they over-estimate the importance of home and family life, but that they fall into the error of thinking their family life must go on for ever, forgetting that the family life should only be an epoch in their own lives, and still more only a short period in the lives of their children, who at 21 should be adult individuals, preparing to establish their own homes and to train their own families. The mother means to be so unselfish, and yet it is largely selfishness that makes her afraid her boy is too delicate or too generous or kind-hearted to be trusted alone in this wicked world.

Some Cases in Point.

Just one or two instances from actual life. A middle-aged woman, who had never met her fate, dreamt that she was having breakfast with her father and her sisters. They were in the dining-room having a really good meal, while her mother, looking old and ill, was running in and out of the kitchen, cooking all kinds of delicacies for her husband and children and waiting on them all. This dream was a great surprise to her, because her mother had never done such a thing in her life. Actually, the mother had been for years a chronic invalid, waited upon by a devoted husband and children, and had ultimately died after a long illness. To some, perhaps, a beautiful picture of devotion, but the irony of it is that the daughters have never married, and one has had a nervous breakdown. The one who dreamt the dream has some chance, for the mother looking old and ill in the dream means not the actual mother, but that the undue attachment to the mother is being realised at last as a sickly and ageing influence, whose spell may soon be broken.

One of the worst examples I ever saw was a healthy middle-aged woman who was wearing out both her husband and a kind doctor by so-called heart attacks; she actually took her 16-year-old daughter away from a boarding school to come home and wait on her; the girl was not allowed to go to dances because her mother had panics that she would have an attack whilst her daughter was out. The mother had the opportunity of treatment for her nerves, but very soon gave it up, the unrecognised desire to remain in the centre of the picture being too strong.

A young woman, a typist, was once brought to me by her mother because she was becoming unduly self-centred and unsocial. The father was dead, the only other child, a boy, was doing well in the colonies. Mother and daughter lived together. The strangle-hold on the latter had nearly crushed the daughter's ability and independence. She must have shown possibilities at one time, because about a year before the head of a firm where she had been employed sent for her to say he was going to enlarge the business and wanted to have a much bigger office and office staff; he wanted her to come back and be the head of this new office. She refused because she felt the responsibility would be too great. When she would not undertake the work the man let the scheme drop; so I told her she must write to him, say she had thought it over and would take up the post if he still wished it. But she never could bring herself to write the letter or to go and see that man; she said she was satisfied with her present post and salary and would stick to them. I explained to her that that was impossible, because we never can remain stationary in life, but must always be advancing or regressing, and told her that unless she roused herself she would get a polite note one day to say that in view of increased costs her salary must be reduced; she then said, "That little note has already come."

In contrast to such a downward career I could tell you of other young men and women who, sometimes in opposition

* Being a lecture given to the Birmingham branch of the Parents National Educational Union on March 9th, 1925.

to father's and mother's wishes, despite the advice of friends, have left the easy job with an assured pension to take the post, little or no better for the moment, in which they visualised possibilities.

Duties of the Father.

But you must not think that only the mother is to be blamed for failure in life; fathers are just as bad, and often worse. One, telling me about his family, said he had a beautiful relationship with his 17-year-old daughter; after she had gone to bed at night he would go up and sit on her bed; she would put her arms round his neck and hug him and say, "Daddy, I love you so much—I shall never want to get married, I shall always stay at home and cherish you." He was surprised when I told him it was not good relationship, and that he must watch for an opportunity of saying to her: "If you really love me, you will look forward, and in every way prepare yourself for the time when you will have left home, and will send for me to lay in my arms your own little baby, the most wonderful treasure you ever had."

A bad case was a man of 50, a bachelor, supporting his sisters, who lived with him. His father had only a very small income. The whole family life centred in the father. Soon after the son had come of age he went one day and said to his father: "Father I have made up my mind I will never marry, but will work always to support my sisters." The father replied: "You dear boy, now I can die happy." It was all wrong. The man who can only earn very little has no right to let his daughters grow up unable to support themselves. Fathers ought not to shelve their duties and pass them on to their sons. The drag on the son was such that he became more and more ineffective, and ultimately so useless that the firm to whom he had given devoted services for many years welcomed an opportunity of pensioning him off. In this case I am not prepared to say the trouble was all due to upbringing and environment. I did not see the man till he was 50, and for all I can tell he may never have had much inborn ability or strength. Environment in childhood and during the awkward age is very important, but we cannot ignore the influence of heredity too. A few lucky individuals are born so strong that the worst possible home environment cannot keep them back.

Another hopeless case was a middle-aged woman convicted of a criminal offence. She did her work conscientiously all day and in the evening went home to slave for a drunken father and an incompetent mother. When I was speaking to her about the various values in life she said: "I think the important Commandment is the Fifth." What is the Fifth Commandment? She replied: "Honour your parents and work for them as long as they live." This woman might have been helped years before, but it was then too late.

The Home Influence.

Many people do not realise how the father and mother influence develops in early childhood. The adolescent does not realise it either, though he may have a glimmering of understanding. A young woman was going to be married in a few weeks to a man who meant a great deal to her. Yet the nearer the marriage the more bad-tempered and deaf she became. There was only slight deafness; the greater part was due to her "nerves," as was also her temper. It transpired at the first interview that her fiancé had told her that though he would make other arrangements for the first year, after that his widowed mother must live with them. Here was the cause of the nerves. Finding that he had married sisters who were capable, if necessary, not only of housing the mother, but of keeping her in her place, I told her that she must tell the man it could not be. "Must I really break off my engagement if he won't agree?" she said. I told her she must be prepared to do so, though probably it would never be necessary. Fortunately it was not. The bachelor who wants to propose but cannot, the man who breaks off his engagement, perhaps shortly before the date fixed for the wedding, and also the young woman who cannot accept the right man, or goes on philandering with the wrong one, are often still fettered by parental chains.

The first idea I want to put before you is that home influence, like another force to be considered directly, is meant to be constructive; if it is misdirected and abused, then it becomes not constructive but hopelessly destructive. When a great Englishman died a few years ago much was written about his beautiful devotion to his mother, whom he either visited or wrote to every day of his life. Some of us thought his life would have been more noble if he had been faithful to his wife and a little less devoted to his mother. The Don Juan type is often an undeveloped person, who has been so spoilt that he is always looking for mere gratification, and cannot reach any large conception of life and duty. He finds no peace in life because he is not aiming at a satisfactory and harmonious combination of all the urges in him.

Development of the Individual.

The aim of training and education is to develop individuals, men and women, who can stand alone and be effective for life. When we speak of being individual there comes to some minds the idea of selfishness. But real individuality implies not selfishness, but the highest altruistic motives. Confusion arises because some think individuality means individualism. Now, individualism is merely the reaction to collectivism; if people are coerced beyond a certain point, they kick over the traces altogether. Individualism is seen at its best—or worst—in America, where as soon as prohibition was established, young men and women, so it is said, were brought home drunk from dances; they did not drink to excess because they really wanted excess, still less because they believed it would do them good and help their development, but as a reaction to extreme collectivism, which was seeking to regulate every detail of life. Individuation, on the other hand, is a word employed by Dr. Jung, of Zurich, to describe the result of the individual being encouraged, helped, and left free to develop all that is in him, so that he can become an effective individual, making the best of himself and also realising he has a duty to humanity. "Since the individual is not only a single separate being, but by his very existence, also presupposes a collective relationship, individuation must lead to a more intensive and universal collective solidarity, and not to mere isolation." Before individuation can be taken for a goal, the educational aim of adaptation to the necessary minimum of collective standards must first be obtained. It has been well said that: "A plant which is brought to the fullest possible unfolding of its particular character must first of all be able to grow in the soil wherein it is planted."

Enforcement of Discipline.

Just a word about discipline and how far the parents should combine to teach it. Discipline must be enforced from the first day of life, chiefly by the mother, but the father must do his part and support the mother in every possible way. Till 7 years or thereabouts the parents should represent a single directing force to the child; between 7 and 14 the parents should gradually cease to show the child an uninterrupted front, for the school discipline is coming in; the mother is still the chief teacher, but in some matters the father should also teach, either separately or in a manner supplementary to the mother. But when the awkward age is reached, if the parents have omitted to enforce discipline before, it is too late; they must stand by and watch the boy they neglected to train at the right time learning the discipline of life in a more unpleasant and painful way by being bullied at school or ragged in the army or at the university or in the office. It is not right after 14 for the parents to combine to bend the child they have allowed to get out of hand. He will instinctively regard their union as an unholy alliance which may drive him into unsatisfactory paths.

After 14 the difference between father and mother must be clearly shown, for during the awkward age the child must gradually learn through his parents that the two sexes have different ideals, and look at life from different angles. He should find out by observing them that it is more helpful to discuss some subjects with a man, others with the opposite sex, and that often the most valuable process is to hear the ideas of both and differentiate between them. In this way he or she comes to his mate, knowing that the two sexes never can look at life from the same point of view, and dimly realising in any particular circumstances which outlook will help the most.

Conclusion.

[Dr. Potts then wisely discussed modern views on sex instinct, and concluded:] We must recognise there are many forms of sex expression. Ordinary social intercourse is one, and dancing is another, of great value as an outlet in the awkward age. Barrack or monastic life too often means running away from life and its problems; if so, it is no help, but often leads to serious complications. We ought to do all we can to make early marriage possible. The father should help his son to marry early, and not present the pitiable spectacle of a manager past his best, still directing the business, which is going down-hill, while the son, who could do more effective work, has to remain a subordinate, and year after year tell his girl that father still hangs on, and so makes marriage for them impossible. In this connexion the choice of a business or profession is most important. Parents often say there is no definite taste; this frequently means that the boy has a call to some work such as a minister, or farmer, an actor or a soldier, which the parents either despise as a calling or regard as too unremunerative for their wonderful offspring. Sometimes there does seem to be no actual wish; then it may be wisest to adopt the father's profession or business, because the chances are that some ability for that will be inherited. Even if nothing special appeals a start must always be made; the policy of waiting to see what turns up is bad. If by any chance the boy or girl starts on the wrong career it will then be easier for them to see the real call.

If the life's work does not satisfy it must either be changed or some hobby of value made an important item in the life. There is now more than one way of testing aptitude for business or profession; in difficult cases these might be employed.

Sometimes parents, who rightly wish their daughter to get married, hesitate to let her do anything definite with a view to sublimation, still less take up a profession or business, because they think it will diminish her chance of matrimony. This is a mistake, because the developed woman, who has made the best of herself, is always more attractive to a real man who wants a companion for life and not a spoilt child.

In conclusion, I would suggest to you that the idea to put before your children is that life is a great and glorious adventure; if we regard it as that, and face our problems and think them out, and also get all the understanding we can, then, though passing through life may involve many hardships and many difficulties, yet the goal at which we aim is worth all the toil and dangers.

ENDOCRINE TREATMENT OF ECTOPIA TESTIS.

To the Editor of THE LANCET.

SIR,—One frequently comes up against a case of ectopia testis in practice where the parents are very desirous of avoiding surgical assistance. During the past few years I have prescribed "mixed glands" tablets (B.W. & Co.) (male), one nightly, in such cases, and it appears to me as if the descent takes place sooner than if left to nature. The last case I have had was a small undeveloped boy of 11, who took one tablet nightly for two years and whose right testicle finally took up its scrotal position three months ago. Is the endocrine treatment the only resort apart from surgical measures?

I am, Sir, yours faithfully,

JOHN WISHART, M.D., D.Sc.

Newcastle-upon-Tyne, May 12th, 1925.

A PECULIAR CASE OF "ALBINISM."

To the Editor of THE LANCET.

SIR,—I have seen in your issue of March 14th, recently received, an extract from a writer in *Man*, saying that he considers there is a local tendency to albinism, and that he has never seen an elderly adult case of albinism. In the town of Ilorin there are over 80,000 inhabitants, and without any search I could show you three elderly adult albinos, and I have no doubt there are more. The local belief is that they have been made so through the good offices of the Goddess of Agriculture, who also is supposed to frame the human body in the womb. The woman to whom such a child is born is very pleased, and carries it round on her back, and receives the alms of the inhabitants, as she walks through the town. There is no suggestion of any part played by the white man, and the matter is satisfactorily explained by the theory mentioned. The adults take their share in the business if females, but the males depend on the charity of the people, or in rare instances they act as buyers of cattle. The people of Nigeria believe in many more deities than the Gold Coast people, and this is probably the cause of the different opinions in countries which are so near to each other.—I am, Sir, yours faithfully,

J. R. C. STEPHENS,

Medical Officer, West African Medical Service.

Ilorin, Northern Nigeria, May 7th, 1925.

PERFORMANCE TESTS OF INTELLIGENCE.

IT is now well recognised that the scales of intelligence tests most generally used—those, that is, of the Binet type—are liable to yield fallacious results in the case of those whose command of words is restricted but who may have considerable capacity for industrial occupations. They are also almost entirely inapplicable to such special classes as the blind, the deaf, and certain speech defectives. To supply what is lacking in the Binet scales many investigators, particularly in America, have devised performance tests, which are intended, of course, to be not merely tests of manual dexterity, but tests of intelligence applied in this direction. These scales of performance tests, in which each test is designed to elicit a different quality of intelligence, have obtained some note, Pintner and Paterson's (1917), Dearborn's (1923), and that used in the United States army in war-time. In a report just issued by the Industrial Fatigue Research Board, Miss Frances Gaw, B.A., puts forward a new scale. It contains no new tests, a selection having simply been made from already existing sources. Nearly half of them are drawn from Pintner and Paterson's scale: Healy's already well-known picture and construction tests are included, as also the even better-known Porteus maze test. The scale has been standardised by an experimental trial upon the children of three L.C.C. elementary schools, but as all the tests are not applicable to all ages, some being too easy for the older children, others too difficult for the younger, the mental ages and intelligence quotients obtained by their use can scarcely be regarded as thoroughly dependable. Even, however, in this tentative form the scale will form a valuable addition to the certifying officer's armamentarium of tests. His only difficulty may be the very practical one of finding time to apply them to his subjects.

"HYGIENE JINGLES."

Dr. R. C. Everitt Atkinson, who is Commissioner of Public Health for Western Australia, has incorporated the rudimentary principles of hygiene and sanitation in the form of verse (Hospital Electrical and Radium, Ltd., Adelaide, pp. 48). Young children in Australian schools apparently spend ample time learning poetry, and the Commissioner jealously claims some of this time for the initiation in personal hygiene and preventive medicine which will give the child an accurately set health compass for life. To those who incline to scoff at his endeavour he replies that they might find it difficult themselves to write in verse elegantly of a rubbish bin, tragically of a mosquito, feelingly of a fly. Dr. Atkinson has really succeeded in writing some jingles which children are likely to read, and his little book is worthy of more attractive format and a competent illustrator.

PYOTROPIN FOR LUPUS.

IN the *Deutsche Medizinische Wochenschrift* for April 3rd Dr. Axmann (Erfurt) describes a new treatment for lupus with a preparation called pyotropin, which consists of a liquid and an ointment. The former contains a sediment of chalk with potassium phenolate and a little free carbolic acid in watery solution. In the ointment there are equal parts of salicylic acid and salicylate of soda with glycerine and sugar added to the base. The trial of pyotropin began in the early part of 1924, and cases which had proved intractable to caustics and various forms of light—those, in fact, in whom the prognosis appeared hopeless—were first selected. The average length of treatment was six weeks. Mucous membrane lesions (nose, ear, eye) appeared to yield with particular ease to the applications. On the whole, the author is satisfied that pyotropin is more efficacious in destroying lupus nodules, and at the same time simpler, cheaper, and safer to apply than all other remedies hitherto recommended. Pyotropin is stated to be non-poisonous. All the cases were treated as out-patients, so that the loss of time entailed was very small. Eighteen actual cases are reported in detail, and the results, according to Axmann, were flat, healthy-looking scars without residual or recurrent nodules, and comparable from the cosmetic point of view to the best Finsen-lamp effects. The method of application is not stated, nor is the question of pain discussed.

STANDARD SPELLING.

THE twenty-seventh edition has just appeared of the "Rules for Compositors and Readers at the University Press, Oxford," first issued by the late Mr. Horace Hart, M.A., Printer to the University, in April, 1893. The present edition, with spellings revised by Sir James Murray and Mr. Henry Bradley, is published by Mr. Humphrey Milford at 2*s.*, and contains 135 pages. It is a most entertaining little book for any who are interested in the histology of printing. Punctuation is a frequent source of delightful or perplexing ambiguity. The story is quoted of Sheridan's apology to a Parliamentary opponent which was printed thus: "Mr. Speaker I said the honourable Member was a liar it is true and I am sorry for it." In this case it would not have been fair, as is usually done, to put the responsibility of punctuation on the compositor. Accuracy is carried to a point unimagined by those who only roughly scan the printed page. Nine or ten pages on alternative or difficult spellings contain distinctions which may be unfamiliar even to the practised writer. Who, for instance, would distinguish between the three forms of a familiar word (1) bogey (in golf); (2) bogie (a truck); (3) bogy (an apparition); and even the University Press fails to give help as to how the plurals should be formed. Some words in the list recall literary tussles: Mr. W. E. Gladstone, at first a champion of the spelling "forego," had ultimately to yield to the authority of Skeat and Sir James Murray, and frankly to admit "I give in." Especially agreeable to medical writers will be the list of spellings on pp. 25–32 for use in medical works, on many of which a difference of opinion no doubt is justified; but the mere fact of having a precise form set out will stimulate the writer to accuracy, either in agreement or disagreement. To those correcting proofs for the first time, p. 124 will appeal.